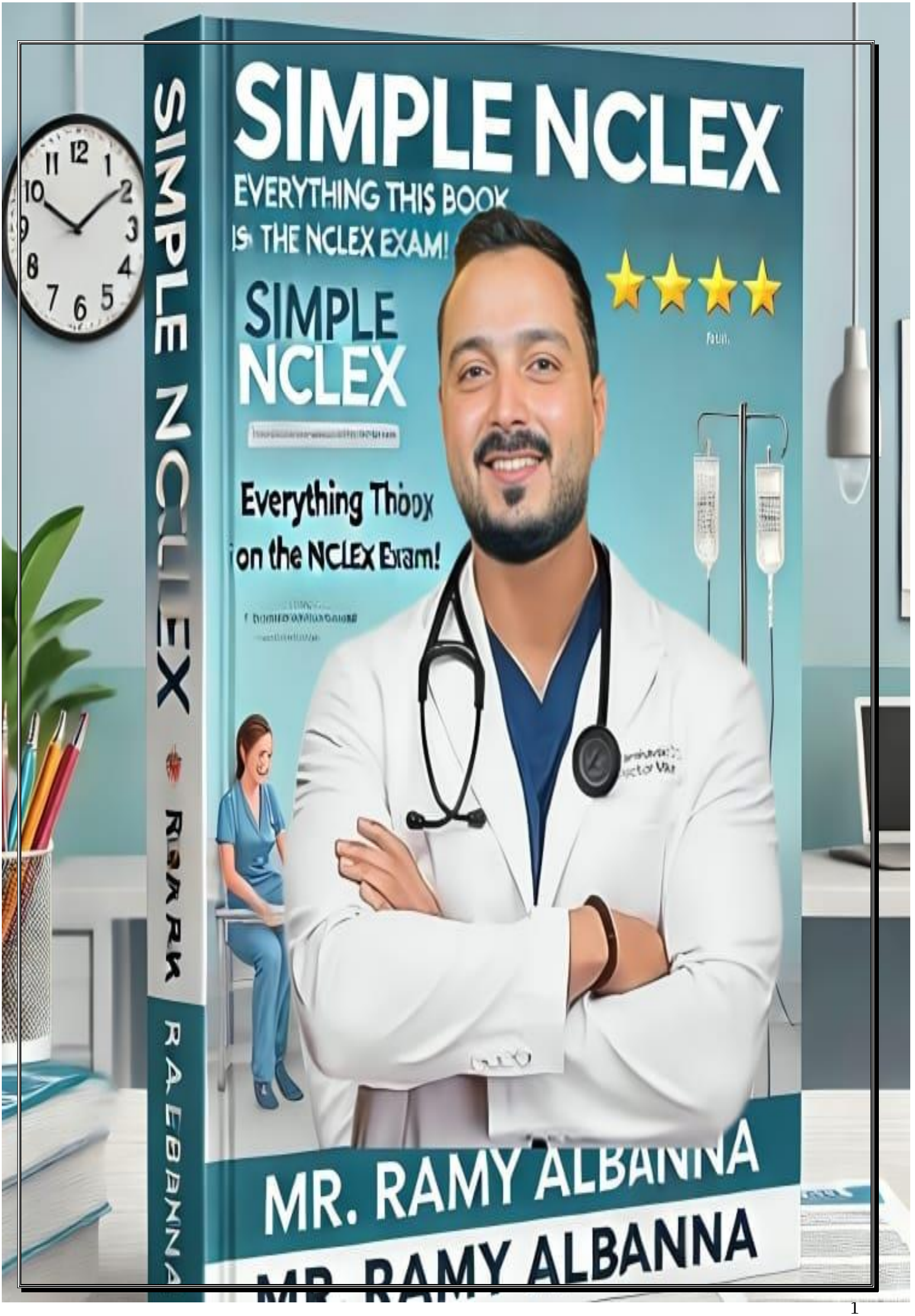
SIMPLE NCLEX
EVERYTHING THIS BOOK
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- **The first rule for success just be focus on preparing, don't focus on the result.**

- **Every expected is happening, so expect what you wish.**

- **You don't have to be GREAT to START, but you must START to be GREAT.**

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(1)

Leadership and management

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STRATEGY and Mindset

Classification: Internal Use

Types of the questions in the NCLEX EXAM

◊ **The FIRST type of QUESTION:**

∇ **"CALL the DOCTOR"**:

- The meaning of that is when you review the question and see the words **Call, Doctor, Nephrologist, Neurologist** in the answer**, just mention that** you must follow this strategy to find the correct answer.

The strategy is:

- You will ask yourself THREE QUESTIONS:

◊ **The First QUESTION:**

Look at all the answers and just ask, is any answer in the question under your scope of practice as a nurse or not?

- So, in case the answer is, "yes" so you **must ask yourself** the other question.

◊ **The Second QUESTION**:

Look at all the answers and just ask, is there any answer can help or solve the patient condition or not?

- If there is an answer you can do to help the patient just do it and **eliminate the answer that says call the Doctor**.

◊ **The Third QUESTION:**

What about if the answer is not in the scope of your practice or the answer doesn't help the patient's condition?

- **So,** eliminate all and call the HCP.

◊ **Example:**

Nurse **work in ICU** and **administered hydromorphone** to the client and after **five minutes** the nurse assessed the **respiratory** and found it 9. **Which intervention should the nurse implement first:**

- Call HCP immediately.

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- Administer Naloxone IV.
- Reassess the client.
- Prepare to ventilate the client.

What if the patient receives **chemotherapy (nephrotoxicity)**has found elevated **serum creatinine**:

- Cancel the next dose.
- Administer chemotherapy.
- Call HCP.
- Obtain urine specimen.

◊ Some chemotherapy drugs, such as **Cisplatin and Methotrexate,** can cause nephrotoxicity, leading to elevated serum creatinine levels.

- Increased creatinine indicates worsening kidney function, requiring immediate medical attention.
- Calling the healthcare provider (HCP) is the priority to assess the situation and adjust the medication dosage or treatment plan.

➢ **The Second type of QUESTION NCLEX Strategy: Maslow's Hierarchy of Needs**

◊ What is it?

- Maslow's Hierarchy is a psychological theory used to rank human needs from most basic (life-sustaining) to higher-level emotional or personal growth needs.

How it helps in NCLEX?

- You can use Maslow's strategy to answer:
- **Priority questions** (Who do you see first?)
- **Best intervention questions** (What do you do first?).

◊ Maslow's Pyramid (from bottom to top):

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- **Physiological Needs** (Airway, breathing, circulation, food, water, sleep, elimination, temperature)
- **Safety & Security** (Physical safety, infection prevention, fall risk, emotional security)
- **Love & Belonging** (Relationships, family, support systems)
- **Esteem Needs** (Respect, confidence, independence)
- **Self-Actualization** (Personal growth, purpose).

Physiological vs. Psychosocial Needs in NCLEX Prioritization

◊ Physiological Needs (First Priority):

- These are the most critical **needs for survival.**
- If not met, the patient's life is **at immediate risk.**

Examples (NCLEX ABC Rule):

- **Airway:** Ensure the airway is open (e.g., choking, intubation).
- **Breathing:** Assess for adequate oxygenation (e.g., respiratory distress).
- **Circulation:** Monitor blood flow and perfusion (e.g., shock, bleeding).
- **Other Basic Needs:** Nutrition, hydration, temperature regulation, elimination, sleep.

◊ NCLEX Strategy:

- Always prioritize Airway, Breathing, Circulation (ABC) over other concerns **unless a psychosocial** need poses an immediate danger (e.g., suicidal ideation).

Psychosocial Needs (Second Priority):

- These needs relate to **mental, emotional, and social well-being.**

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- They do not immediately threaten life but **impact quality of life and recovery.**

Examples:

- Anxiety, depression, fear, and stress.
- Coping mechanisms and emotional support. (These are strategies patients use to manage stress, anxiety, illness, or crises).
- Pain management (**unless it affects vital signs**).
- Developmental or social issues.

◊ **NCLEX Exception**:

- If a **psychosocial issue directly endangers** the patient's life (e.g., suicide risk, hallucinations leading to self-harm), it becomes a priority.

Key Takeaway for NCLEX:

- **Always prioritize** life-threatening **physiological needs** first before addressing **psychosocial concerns**, unless there is an immediate risk to the patient's safety from a psychological condition.

∇ **The Second role:**

- **The most important, just don't let the NCLEX tricky you NCLEX Prioritization Rule:**

Real problems take priority over **potential (risk) problems** even if the **real problem** is psychosocial.

◊ Explanation:

- **Real Problem (Current Issue) → Always the Priority:**
- A problem that is already happening requires immediate intervention.
- Example: A patient actively experiencing **suicidal thoughts takes** priority over a patient at risk for depression.

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Potential (Risk) Problem → Not the First Priority:

- A problem that might happen in the future is a lower priority.
- Example: A post-op patient at risk of infection is not as urgent as a patient with an **active wound infection.**

◊ NCLEX Tip:

- **Even if a real problem** is **psychosocial** (e.g., active suicide risk, severe panic attack), it can still be the priority over a **potential physiological problem.**
- The key is to address what is happening now before **preventing what might happen later.**
- **Example:**
- The nurse provide care to a client **after prostatectomy** which of the following nursing diagnosis is the priority?
- Deficient knowledge about post-operative.
- Risk for imbalance fluid volume
- Risk for hemorrhage
- Acute pain related to surgical incision.

◊ **Acute pain related to surgical incision**

- Pain is a real, existing issue after surgery.
- If not managed, pain can lead to complications such as increased blood pressure, stress response, and delayed healing.

∇ **In order of pain how we can prioritize:**

- Step 1: Ask Yourself:
- **"What kills the patient first?"** Or at least: **"What harms the patient first?"**

Examples:

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- **Chest pain** vs. **leg pain** → Chest pain could indicate a heart attack and is **life-threatening**.
- **Abdominal pain** vs. **headache** → If the headache is sudden and severe, it could mean a stroke.
- Prioritize the **most dangerous or life-threatening cause of pain**, not just the most painful.

- Step 2: Look for Key Words in the Question
  - Words like: **New, Sudden, Abrupt, Rapid, Acute** These words often indicate a **critical change** and a possible emergency.
- If you see these words:
  - **Do NOT delay** → You must **assess** and/or **intervene** immediately

When will the pain be a physiological?

- **In the NCLEX Pain is a physiological need as (chest pain, MI)** the priority here is not the **pain** the priority here is **occlusion of the coronary artery** there is pain, but pain affect the patient it's life threating condition.
- **Sickle cell anemia** present with pain the patient presents here and **give IV fluid** because of the pain from **clamp RBCS together** means this life threating condition. **RBCS** contains a **protein** called hemoglobin, which carries oxygen from the **lungs** to all parts of the body

When will the pain be psychosocial?

- **Let's say the patient has chronic back pain in this case its psychosocial**

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- So, how can you use strategy for Maslow's Hierarchy to find the correct answer?
  - **First,** you need to identify which in your answer is **physiological** and which one is **psychosocial.**
  - **Second**, eliminate psychosocial from your answer.
  - **Third,** ask yourself does the remaining from **physiological** helps the patient **condition if yes,** so you should Apply **ABC** to get the correct answer.

◊ **Examples:**

◊ A client diagnosed **with sickle cell anemia** comes to ER department complain of **joint pain**. Temperature is 38 and O2 saturation is **91%** which action should the nurse implement first:

- **Request** arterial blood.
- Administer oxygen via nasal cannula.
- Start IV with an 18 gauge.
- Prepare to administer analgesic.

◊ **In sickle cell anemia,** oxygen is crucial to prevent sickle cell crisis, where sickled red blood cells block blood flow, leading to pain, hypoxia, and organ damage.

- Oxygen saturation of 91% is low for a sickle cell patient, as they are prone to hypoxia.
- Providing oxygen helps reduce sickling of RBCs and improves perfusion.

➢ **Third type of QUESTION:**

◊ **Select all that apply (SATA) Questions:**

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◊ **There is a strategy we can use to help us find the correct answer to this question:**

◊ Step one:

- Once you determine what is **patient problem** or what the **patient condition** just ask is the answer **make sense is it True or False in relation with scenario.**

◊ Second step:

- look to the answer and determine **if there two answers are similar** as if the answer "**give the medication with liquid** or give with **food"** so, the most of time both wrong.

- Or if there **two answers are opposite** as if the answer say **"give the medication on the morning** another **give the medication at bedtime** "so most of time one correct.

- Third step:
  - if the part of the answer corrects and the other part wrong the whole answer is wrong.

◊ **The first important role in SATA:**

- **If** in doubt go without which means If you don't know the answer just don't select it always ask yourself if it's necessary in terms of **safety** or **not. Choose only the options that you are 100% certain are correct and safe.**

◊ Fourth step:

- Look to absolute words like **(all, always**, **Never**, **must**, **cure**, **every**, **none**, **only**, » it's probably to be wrong in the answer. But there are exceptions. In NCLEX questions, answers that include **absolute words** like these are usually **incorrect** because they suggest there are **no exceptions** or that something is **always true**

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in every situation. However, there **can be exceptions**, especially when the answer relates to **patient safety.**

- NCLEX Question:
- A nurse is teaching a patient with type 2 diabetes about dietary management. Which of the following statements by the patient indicates a need for further teaching?
- A. "I must avoid all foods that contain sugar."
- B. "I will try to include more vegetables and whole grains in my meals.
- C. "I should monitor my blood glucose regularly.
- D. "I can have occasional sweets if I account for them in my meal plan."
- Explanation:
- Option A contains the absolute word "all", which makes it incorrect because patients with diabetes don't need to completely avoid all sugar — moderation and balanced diet are key.

◊ Example:

- **"All patients with chest pain should receive thrombolytics."**
  - The word **"all"** is absolute and this is **wrong**. Not every patient with chest pain needs thrombolytics; it depends on the diagnosis.
- **"You should always restrict fluids in patients with heart failure."**
  - The word **"always"** is absolute and **incorrect**.
  - Fluid restriction depends on the patient's condition, not always required.

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◊ **Examples:**

A nurse is preparing to administer an oral antibiotic to a patient. What is **the best way** to give medication?

- Give medication **with food.**
- Give the medication **with a liquid.**
- Assess for allergies before administration.
- Double the dose if the patient misses a previous one.
- **Options 1 and 2 are similar**, they are likely both wrong. The best action before giving any medication is to check for allergies.

- Pt has **80 years** diagnosed with **acute gastroenteritis,** which nursing intervention should be included in the care plan? **Select all that apply:**
- Assess the skin on the back of the client's hands.
- Monitor the client for orthostatic hypotension.
- Record the frequency and characteristic of sputum.
- Use standard precautions when caring about the client.
- Use droplet precautions.

➢ **Some tips here you must take attention on it:**

- **Avoid** choosing absolutes on the NCLEX like « always, Never, must, cure» it's always typically to be wrong in the answer. The NCLEX does not like absolutes.
- **The NCLEX** will not suddenly Cure or heal your client.
- **Don't read** into the Question.
    - Use only what they give you in the question.
    - Don't add extra meaning.

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- **Always** the least **invasive First** to most **invasive procedure** is always last.
- **Assessment** comes first and interventions or even treatment comes second.
- **Always assess** the Patient First before assessing machines or even equipment.
- **Avoid** the Answer that delays the care as patient cannot take his breathe and told in the answer reassess after 5 minutes.
- **If two answer choices** are exactly opposite, so one is probably the answer.
- **If two options** are very similar or saying the same thing, both are non-correct.
- **If one part** of the answer option is wrong, the whole answer option is wrong.

Golden tip:

- Focus on nursing priorities (ABCs – Airway, Breathing, Circulation) and ensure you choose the right interventions based on the scenario provided.

➢ **Fourth type, Assessment VS Implementation:**

◊ **Assessment before implementation (non-emergency).**

- **In non-emergency** situations, assessment should always come before implementation.
- **This means** that before taking action, you should gather more information about the patient's condition.

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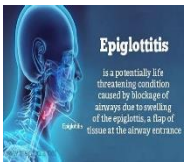
- **Example:** If a patient reports shortness of breath, assess lung sounds and oxygen levels first before deciding on an intervention.

◊ Exception: In **emergency situations** (e.g., cardiac arrest), immediate intervention is needed before full assessment. In cases like **cardiac arrest**, you do **not** perform a *full* assessment before acting. Instead, you do a **rapid assessment** that takes only seconds to decide your next step.

◊ **Assessment before implementation (non-emergency):**

◊ A nurse provides care to a 3-year-old client who presents the ER with a **high fever**, **sore throat** and **drooling** which of the following nursing intervention is priority:

- (A)Assess oral temperature.
- (B)Assess for the presence of **stridor**.
- (C)Assess the client oxygen saturation.
- (D) Position the client in supine position.


Epiglottitis
is a potentially life threatening condition caused by blockage of airways due to swelling of the epiglottis, a flap of tissue at the airway entrance

Drooling: means difficult swallowing.

Stridor: is a high-pitched sound you make when you breathe through **a narrow or partly blocked airway**

- Here is the explanation:

- The key words are **drooling**, and all signs **indicate epiglottitis** means medical emergencies so we must choose implantation to save the client but do not be in a hurry you must to think carefully to choose the correct answer:
- (A) Contraindication for epiglottitis.

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- **(B)** Stridor is a **high-pitched sound** you make when you breathe through **a narrow or partly blocked airway**.
- (C) Very important.
- (D) Contraindication for epiglottitis.

◊ **Assessment before implementation (non-emergency):**

◊ A client who has been diagnosed **with UTI** is experiencing **acute pain** and discomfort what should the nurse **implement first:**

- (A)Give pain medication as per doctor.
- (B)Encourage clients to increase oral intake.
- (C)Notify HCP.
- (D) Assess the level of pain using a pain scale.

There is a strategy here when you see assessment and implantation in the answers **you must think about this:**

in the question:

- if you look of the problem there **is not a whole lot of information** the only thing we have just information **referred by the patient** and there is no any indication the nurse **conducted an assessment** or even any **measurable data**, in the question there is a little bit information as "**the pain is acute, patient in pain**, patient is acute but **what is the level of pain one, moderate or severe?** What type of pain? What makes the pain worse or good? Is emergency? Nothing is in the question so, if the question lacks valuable information, you must assess first.

Be cautious again, Assessment does not always come first because implementation can be answered in **scenarios where you have an emergency.**

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➢ Prioritization:

- What will you do **right now to save the client** from dying? just ask about What Kills your client right now?
- Or even What will you do right now to save the client from **loss limb**?

For Prioritization:

- Remember, **unstable client** comes first on the answer.

So, who are Unstable clients:

- This is an **acute patient** means there is sudden change.

Words in the NCLEX Indicate unstable client:

- **New**, **Sudden**, **Worsening**, **rapid**, **return to the Floor after any Procedure**, **Post-operative after Surgery.**
- **New** such as patient new diagnosis, even his Vital signs are Stable It Consider **Unstable** because it's new.
- Always Remember the NCLEX **will not cure** Your Client so should the nurse assess and implement before cured if suddenly that's mean **big complication.**

A nurse receives a report on four clients. Which client should the nurse see first?

- A. A client with chronic heart failure who has 1+ pitting edema in both legs.
- B. A client post-op (2 hours after surgery) with a blood pressure of 88/50 mmHg.
- C. A client with pneumonia who has a temperature of 100.4°F (38°C) and is receiving antibiotics.
- D. A client with diabetes who needs insulin before breakfast.

Stable Clients:

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- **Have no Changes and are long term** client with **long term conditions** basically **chronically Conditions.**

So, what is the priority in the NCLEX:

- **We must follow the important strategy in the NCLEX** ABCs:
- **A:** airway
- **B:** Breathing
- **C:** circulation

How to prevent injury:

◊ Here we look for some tips:

- **As low glucose levels**, less than **70,** the **brain will die.**
- **Any Creatine level,** over **1.3** dead kidney.
- **Infection,** any Temp that is high, especially for those who have weak immunity, **Chemo, immunosuppressant's**, **neutropenic precautions** any slight increase in temperature will kill the client.
- **Pain,** you must prioritize the Pain **based on the area involved** as if there are two Clients just ask yourself **who will be harmed first**. **What the Worst thing that can happen**? **Loss of life** or **loss Limb First.**

➢ **Let's talk again about ABCs:**

1-A: For airway:

◊ **We must look at some key words such as:**

First, Stridor:

- **A high-pitched sound heard** when breathing through a narrow or partly blocked airway.
- Usually caused by throat swelling or any partial blockage or narrowing in the upper respiratory tract (like the larynx or trachea).

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- It's a sign of airway obstruction and is often an emergency.
- Common after throat surgeries (like thyroidectomy), infections (epiglottitis), or trauma.

Squeaky Breathing (Wheezing):

- **A high-pitched, wheezing sound heard** during breathing (both inhalation and exhalation).
- Caused by narrower than normal airways in the lower respiratory tract (bronchioles).
- Happens due to partial blockage or inflammation (e.g., asthma, bronchitis).
- Important to monitor airway especially after any throat surgery, because airway swelling can cause severe problems.

Hypoxia:

- Means low oxygen the Clinical Manifestation of Low oxygen is **Change in mental Status**, **Level consciousness, agitation**, **Confused, restlessness**.

2-(B) For Breathing:

◊ Normal in ABG is ($Paco_2$= 35-45):

- **High Carbon dioxide**, **over 45 means hypercapnia respiratory failure**.
- **CO2 above 45 means** hypercapnia respiratory failure. So, much CO2 that carbon dioxide turns the body to an **acidic state** and shuts off the breathing.

3-(C) Circulation:

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- We're talking about **heart and blood vessels** so; Vital Signs are important.

🚨 If will talk about **Blood pressure:**

- What BP Will Kill on the NCLEX? We must consider critical measures:
- **Low** BP→ **Shock** means Low oxygen to the body.
- **High** BP →**over 180** systolic Stroke its **brain bleeding.**
- ◊ **One other thing in Circulation:**

🚨 **Bleeding**→

- **Internal bleeding in the abdomen** this Indicates bleeding in the abdominal area after any surgery any type of trauma or even acute condition.
  - The clinical manifestation in NCLEX you must keep attention **tachycardia** and **hypotension** it means **bleeding.**

🚨 What about the Labs For bleeding:

- Platelets the normal range is (150.000/400.000).
- Platelets under 150,000 is **thrombocytopenia** the blood cannot Clot that's very risky if any under 150,000 clients.

🚨 What about giving blood thinners like heparin even Warfarin?

- **PTT** Levels and **INR** must be assessed.
- If it's too high, Think Clients bleed out and die.

➢ **First: How to Answer Mass Casualty Questions (NCLEX Triage Strategy):**

- **Step 1 – Ask Yourself 3 Priority Questions:**
  - **Who has life-threatening injuries and needs help immediately?**

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Classification: Internal Use

- **Who has injuries that are not life-threatening?** → Eliminate them from *immediate* priority.
- **Survivability:** Who has the highest chance of survival **if** I intervene? → Focus on them.

- **Step 2 – Quick Assessment for Each Victim (takes seconds):**
  - **Breathing:**
  - If they're not breathing → open airway.
  - If still not breathing → *expectant/deceased* (move on).
  - If breathing starts → **Immediate** help needed.
  - If breathing rate > 30/min → **Immediate** help needed.
  - **Circulation (Perfusion):**
  - Check capillary refill or radial pulse.
  - If cap refill > 2 seconds or no radial pulse → **Urgent** care.
  - **Mental Status:**
  - If they can't follow simple commands → **Urgent** care.
- **Step 3 – Prioritize Like This:**
  - **Immediate:** Those who will die without fast care but have a good chance of survival with intervention.
  - **Delayed:** Serious but can wait — minor wounds, stable vitals.
  - **Expectant/Deceased:** Clearly dying or dead — do not spend time here in mass casualty.
- **Step 4 – NCLEX Tips:**
- Always pick the person with **ABC problems** (Airway, Breathing, Circulation).
- Don't be distracted by patients crying or walking — they are usually **low priority**.

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- If no breathing/pulse after opening airway → *not* a priority in mass casualty.
- Think like a **field nurse**: move quickly, save the most lives.

➢ **The framework in NCLEX related to prioritization:**

∇ First-Level Priorities: Life-threatening These are immediate threats to survival. You must act right away:

- **Airway** – Is the airway open and clear? Any obstruction?
- **Breathing** – Look for signs of respiratory distress.
  - Hint: Hypoxia often shows as altered mental status (e.g., restlessness, confusion).
- Circulation – Is there shock, active bleeding, very low BP?
  - Think: ABCs (Airway → Breathing → Circulation)
  - If Airway is compromised — handle it first, always.
  - If breathing is compromised (e.g. RR <8 or >30, O2 sat <90%, or signs of hypoxia), that's next.
  - Then, circulation issues (like hypotension, arrhythmias, bleeding, weak pulses).

∇ Second-Level Priorities: Urgent, But Not Immediately Life-Threatening:

- These issues can worsen quickly if ignored.
  - Pain – Especially severe or unrelieved pain.
  - Acute medical concerns – e.g. Hypoglycemia, seizures, changes in LOC.

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- Abnormal lab values – especially critical labs (K+, Na+, glucose, INR).
- Infection signs – fever, elevated WBCs, or signs of sepsis.
- If there's risk of spreading or if infection leads to instability, it becomes urgent.

◊ **How to Apply This in NCLEX Questions:**

∇ Ask yourself:

- 1-Is there an ABC problem?
  - If yes → this patient comes first.
- 2-If not ABC, is there an urgent medical issue like Hypoglycemia or abnormal labs?
  - If yes → this is second.
- 3-If the issue is pain, infection, or abnormal lab that doesn't threaten life →
  - maybe second level.
- 4-If it's education, emotional support, or chronic concern →
  - lowest priority.

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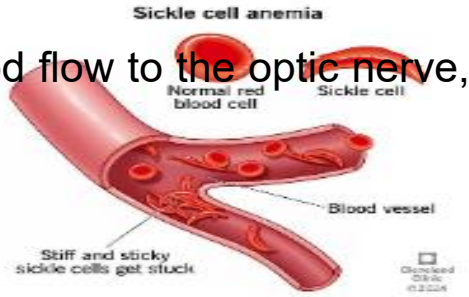
Applying Key Principles (NCLEX Focus)

➢ Stoke in children:

- **Ischemic stroke** occurs when the **blood supply** to part of the brain is **blocked or reduced**. This prevents **brain tissue** from getting **oxygen and nutrients**. It's common in children with **sickle cell anemia.**

∇ Ischemic:

- **Refers to any tissue** or organ that isn't getting enough blood, and the effects **depend on** which organ is affected.
- Common examples:
- **Ischemic Heart Disease / Myocardial Ischemia** → reduced blood flow to the **heart muscle;** can cause angina or heart attack.
- Ischemic Stroke → reduced blood flow to part **of the brain**, causing a stroke.
- Peripheral Ischemia → reduced blood flow to **limbs (arms or legs),** often due to peripheral artery disease.
- Ischemic Bowel / Intestinal Ischemia → reduced blood flow to the **intestines;** an emergency condition.
- Ischemic Optic Neuropathy → reduced blood flow to the optic nerve, which can cause vision loss.



◊ Sickle cell anemia:

- Sickle cell anemia is **a genetic disorder** characterized by the **production of abnormal hemoglobin** leading to **sickle-shaped** red blood cells.
- These cells have **a shorter lifespan** and can cause **Vaso-occlusive crises (Blockage of blood vessels).**

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- **Red blood cells** are usually **round and flexible**, so they move easily through blood vessels.
- **In sickle cell anemia**, some red blood cells are shaped like **sickles or crescent moons.** These **sickle cells** also become **rigid and sticky**, which can **slow or block blood flow.**
- it affects the hemoglobin in red blood cells (RBCs), reducing their ability to carry oxygen efficiently throughout the body.

◊ Common sites of Vaso-occlusive crises include:

- **Bones** (especially long bones and spine)
- **Abdomen** (causing severe abdominal pain)
- **Joints**
- **Lungs**
- **Brain** (which may cause stroke)

◊ Signs & Symptoms:

- **Vaso-occlusive Crisis (Pain Crisis):**
  - Severe pain (common in bones, chest, abdomen).
  - **Triggered by** dehydration, infection, stress, cold exposure, or hypoxia.

◊ Complications:

- **Acute chest syndrome (ACS):** Life-threatening! Symptoms mimic pneumonia (fever, chest pain, hypoxia).
- **Stroke:** Sudden weakness, slurred speech.

◊ Management & Nursing Interventions (HOP Protocol):

- **H – Hydration** (IV fluids to reduce sickling).

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- **O – Oxygen** (if hypoxic).
- **P – Pain control** (opioids like morphine, NSAIDs for mild pain).

◊ Patient Education:

- **Avoid dehydration:** Drink plenty of fluids daily; dehydration can trigger a Vaso-occlusive crisis.
- **Avoid extreme temperatures:** Very hot or very cold environments can worsen sickling of red blood cells.
- **Vaccinations:** Stay up to date to prevent serious infections:
- **Recognize early signs of a crisis:** Know the symptoms of a Vaso-occlusive crisis (sudden pain, swelling, fever) and **seek prompt medical care** to prevent complications.

➢ Heat Stroke:

- Life-threatening failure of the body's **cooling system**.
- Core temperature > 104°F (40°C) with **neurological dysfunction** (confusion, altered mental status).

◊ Types of Heat Stroke:

◊ 1. Classic (Non-exertional) Heat Stroke:

◊ Risk factors:

- **Age-related changes:**
  - Elderly → decreased number & function of sweat glands.
- Infants → immature sweat gland function.
  - **Chronic diseases:** Cardiovascular disease, diabetes, neuropathy.

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- **Medications:**
  - Anticholinergics (e.g., atropine, antihistamines).
  - Diuretics → dehydration reduces sweating.
  - Beta-blockers → reduce blood flow to the skin

◊ Cause:

- Prolonged exposure to high temperature & humidity; **impaired ability to sweat.**

- Skin: Hot, dry, flushed (no sweating).

◊ Risks:

- Brain damage, death.

- Complications:
  - Organ failure (kidney, liver, heart).
- Electrolytes:
  - May develop hypernatremia if dehydration is severe.
- Key Point:
  - Typically, **no sweating**.

◊ **2-Exertional Heat Stroke:**

- Risk factors:
  - soldiers, marathon runners.
- Cause:
  - Strenuous physical activity in hot environment → excessive sweating (loss of water + electrolytes) → failure of cooling system.

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- Skin:
  - May be sweaty initially, later hot and dry.
- Complications:
  - **Rhabdomyolysis** (skeletal muscle breakdown releasing myoglobin).
  - Which result in:
    - Hyperkalemia, Hypocalcemia, Hyperphosphatemia
    - Result from **rhabdomyolysis** (skeletal muscle breakdown releasing intracellular contents).
    - Monitor **CK (Creatine Kinase)** levels → high = muscle breakdown.
    - Monitor **urine output & color** → dark urine or low output = kidney injury.

◊ **Electrolyte Imbalances in Heat Stroke:**

- Hyponatremia:
  - Occurs if fluid loss is replaced with **water only** (without electrolytes).
  - Risk of **cerebral edema** (headache, confusion, seizures).
- Hypernatremia:
  - Occurs if fluid loss is **not adequately replaced**.
  - Water loss > sodium loss → sodium concentration rises.

◊ **Management / Priorities:**

- Airway & Breathing: Ensure airway patency; give oxygen if needed.

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- **Cooling:**
- Ice packs in armpits, groin, neck
- Cold IV fluids
- **Fluids:**
- Isotonic IV fluids (NS or LR)
- Avoid overhydration → **prevent cerebral edema** too much fluid can cause **fluid to accumulate in the brain** → the brain **swells** → this is called **cerebral edema**.
- **Prevent shivering:**
- Use **benzodiazepines** if shivering occurs (shivering raises body temp)
    - Shivering **generates heat** during cooling → give **benzodiazepines** to relax muscles and reduce heat production.

◊ Monitor for complications:

- Electrolyte imbalances
- Rhabdomyolysis:
    - Rapid breakdown of skeletal muscle tissue which releases **myoglobin** into the **bloodstream**. This can **damage the kidneys**.

▪ Why check CK and urine output:

- **CK (Creatine Kinase) levels:** High CK indicates **muscle breakdown**.
- **Urine output:** Low or dark urine may indicate **kidney damage** from myoglobin.

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◊ **Priority: A** (Airway & cooling first!)

- Severe hyperthermia / heat stroke / rhabdomyolysis can rapidly progress to:
  - **Organ failure** (kidneys, liver, heart).
  - **Death** if not managed immediately.

➢ **Rhabdomyolysis**:

- Rhabdomyolysis is the **breakdown of skeletal muscle**, which releases myoglobin into the bloodstream.
- **Myoglobin**
  - is toxic to the kidneys, and in high amounts, it can cause acute kidney injury (AKI).

◊ Common signs and symptoms:

- weak muscles, muscle stiffness, muscle pain and a change in your pee color.
- Acute renal Failure Can occur from **elevated Myoglobin** (Protein found in muscle Tissue).

◊ Common Causes (NCLEX loves these) Trauma or crush injuries:

- **Prolonged immobility** (e.g., found down after overdose, post-seizure)
- Extreme exercise (e.g., marathon runners, military training)
- **Statin medications** (especially with other risk factors Dehydration)
- Heat stroke
- Seizures or electrical burns.

⇨ Sign and Symptoms

- Bloody urine, oliguria, Fatigue.
  - Oliguria:

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- Urine output is less than .5ml /kg.
- Less 280ml in 8hrs.
- Less 30ml in one hour.

- Management and Nursing Interventions:
- **Fluid resuscitation:**
  - Aggressive IV fluid therapy (e.g., normal saline or lactated Ringer's) to flush out myoglobin and prevent kidney damage.
  - Electrolyte monitoring and correction.
- Pain management.
- Patient Education:
- Educate patients on preventing muscle injury, proper hydration, and avoiding excessive physical exertion.
- Advise about avoiding alcohol or drugs that can contribute to rhabdomyolysis.

➢ **Glasgow Coma Scale (GCS) Purpose:**

- Measures **level of consciousness** in patients with brain injury, stroke, or ICU monitoring.

◊ Components & Maximum Scores:

◊ **1-Eye Opening (E) – 4 points**

- 4: Spontaneous
- 3: To verbal comman
- 2: To pain
- 1: None

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- **2-Verbal Response (V) – 5 points**
  - 5: Oriented, normal conversation
  - 4: Confused
  - 3: Inappropriate words
  - 2: Incomprehensible sounds
  - 1: None
- **3-Motor Response (M) – 6 points**
  - 6: Obeys commands
  - 5: Localizes pain
  - 4: Withdraws from pain
  - 3: Flexion to pain (Decorticate)
  - 2: Extension to pain (Decerebrate)
  - 1: None

◊ Total Score: 3–15:

- **3–8:** Severe brain injury → often requires intubation & ICU care
- **9–12:** Moderate brain injury
- **13–15:** Mild brain injury / fully alert

➢ **Asthma exacerbations:**

- **Acute or sudden worsening** of asthma symptoms.
- Caused by:
  - **airway inflammation, bronchospasm, and increased mucus production**, which leads to **airway obstruction**

◊ Signs & Symptoms:

- Mild to Moderate:
  - Cough, wheezing, shortness of breath

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  - Prolonged expiratory phase
  - Increased respiratory rate
  - Chest tightness

- Severe (Life-Threatening):
  - Silent chest (no wheezing = complete airway obstruction!)
  - Accessory muscle use, nasal flaring
  - Cyanosis (bluish lips/fingertips.
- NOTE:
  - This client May requires repeat **nebulization** every 20 minutes or continues for one hour to relieve **sever bronchoconstriction** until administer of **corticosteroid** take effect and start to reduce the **inflammation**.
- Bronchi dilator drug as
  - albuterol, ipratropium) work immediately.
- Steroids (Methylprednisolone):
  - Do not show effect immediately **These drug control** underlying inflammation but take several hours to take effect.
- Priority: A
- **Why:** Severe exacerbation → **acute airway obstruction** → immediate threat to life.

➢ **NCLEX Nursing Priorities After Thyroidectomy:**

- 1. Airway & Breathing (Always First)
- **Risk:**
  - Airway obstruction due to swelling, bleeding.
- **Assess for:**

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  - Stridor, hoarseness, difficulty breathing.
  - Frequent swallowing (may indicate bleeding).

- Keep at bedside: **Tracheostomy set, oxygen, suction equipment.**

- 2. Bleeding / Hemorrhage
- **Risk:** Especially within first 24 hours.
- **Assess:**
  - Back of the neck for pooling blood.
  - Frequent swallowing.
- 3. Hypocalcemia:
- **Risk:**
  - **Damage or removal of the parathyroid glands** (e.g., during thyroid or neck surgery).
  - The parathyroid glands produce **PTH (Parathyroid Hormone)**.
  - **PTH's job:** raise blood calcium
- **Assess:**
  - Trousseau's sign (Carpal spasm (hand/fingers curl) when a blood pressure cuff is inflated above the patient's systolic pressure for **2–3 minutes**)
  - Chvostek's sign (Twitching of the facial muscles when the **facial nerve** is tapped just in front of the ear).
- Tetany, numbness/tingling around mouth, seizures.
- **Priority:** IV calcium gluconate at bedside.
- 4. Positioning:
- **Semi-Fowler's** with head supported → reduces swelling and tension on suture line.
- Avoid neck extension.

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- 5. Voice Changes:
- Temporary hoarseness is common due to intubation or laryngeal nerve irritation.
- Assess for **persistent hoarseness/voice changes** → could indicate laryngeal nerve damage.
- Priority: A:
    - **Stridor: A** → airway obstruction, **life-threatening**
- NCLEX Question Trick
- If the question asks:
- Which finding is the **priority** after thyroidectomy?
- Options may include:
- Hoarseness
- Tingling in fingers
- Stridor
- Pain at incision

➢ **Tonsillectomy:**

◊ **Risk:**

- **Hemorrhage** is the main risk.
- Highest risk:
    - **first 24 hours post-op** but can occur up to **14 days** after surgery.

◊ Nursing Teaching:

- **Activity:** Avoid strenuous activity, sports, or heavy lifting for **7–14 days**.
- **Avoid actions that increase bleeding:**
    - No excessive **coughing**
    - No **blowing the nose forcefully**.

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- Avoid **bending forward / straining**
- Prevent **vomiting** if possible

◊ Signs of Hemorrhage (NCLEX Priority):

- Frequent swallowing, even while asleep
- Restlessness or anxiety
- Pallor
- Vomiting bright red blood
- Tachycardia and hypotension → late signs, indicate significant blood loss

◊ NCLEX Tip:

- After tonsillectomy, **frequent swallowing and restlessness** are the **earliest signs of bleeding** and require immediate assessment.

➢ **Bronchiolitis:**

- Most common CAUSE:
  - RSV (Respiratory Syncytial Virus).

◊ Leads to:

  - **inflammation & swelling of bronchioles** → airway obstruction.

◊ Key Point:

- **Common in:** Infants & young children (< 2 years).

◊ Symptoms:

- Cough, wheezing.
- Tachypnea (fast breathing).

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- Retractions (use of accessory muscles).
- Nasal flaring.
- Poor feeding / irritability.

◊ Priority Assessment:

- **Airway & breathing**
- Monitor: Oxygen saturation, respiratory effort.
- Watch for: **Apnea** (especially in infants) or **severe respiratory distress**.

◊ Management / Nursing Care:

- Oxygen if **SpO_2 < 90%**.
- Hydration: Oral or IV fluids if poor intake.
- Suction nasal secretions

◊ NCLEX Tip:

- **Infants with bronchiolitis = high risk for airway obstruction.**
- Always **assess respiratory status first → Airway & Oxygen = top priority**.

➢ **Fat Embolism Syndrome (FES):**

- Fat globules enter bloodstream, causing lung, brain, and skin problems, lodge in small vessels → cause obstruction & inflammation.
- often after long bone fractures.

♦ Common causes:

- Femur, pelvis, rib fractures

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- Orthopaedic surgeries
- Trauma.
- Bone marrow transplant, corticosteroid use.

♦ Manifestations (24–72 hours post-injury):

- **Respiratory distress:**
  - Dyspnea, tachypnea, hypoxia, crackles, cyanosis, possible ARDS.
- **Neurological symptoms:**
  - Confusion, restlessness, seizures, coma.
- **Petechial rash:**
  - Small red/brown spots on chest, armpits, conjunctiva (late sign).

♦ Complications:

- **Sudden death** from massive PE.
- Hypoxemic respiratory failure

♦ Management (Supportive care):

- **Airway, Breathing, Circulation (ABC's)** → administer **high-flow oxygen**.
- Positioning: **High-Fowler's** to improve oxygenation.
- **IV fluids** to prevent shock & maintain hydration.
- **Corticosteroids** sometimes used to reduce inflammation.
- Immobilize fractures quickly to prevent further fat release.
- Monitor for respiratory failure, ARDS.

➢ **DVT (deep vein thrombosis):**

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- Blood clot (**thrombus**) in a deep vein, usually the legs.
- Can **partially or completely block blood flow**.

♦ Risk Factors / Causes:

- **Venous stasis:** Blood pools in legs → veins can't return blood effectively
- Post-operative immobility, prolonged bed rest, long travel
- **Hypercoagulability:** Blood clots more easily → cancer, pregnancy, oral contraceptives, clotting disorders

♦ Signs & Symptoms:

- **Warmth, pain, tenderness** in one leg
- **Unilateral edema and redness**

◊ Nursing Assessment / Priority:

- **First:** Assess patient who reports leg pain/swelling/redness
- **Monitor for complications:** Chest discomfort or cough → possible **pulmonary embolism (PE).**

➢ **Pulmonary Embolism (PE)**

- **Life-threatening** condition caused by a clot (often from DVT) that travels to the lungs and blocks blood flow.

♦ **Signs & Symptoms:**

- Dyspnea (shortness of breath)
- Hypoxia
- Tachypnea (fast breathing)

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- Chest pain

♦ Prevention from DVT and PE (NCLEX Focus!)

- Early ambulation (especially post-op) → **best prevention**
- Compression stockings (**TED hose**)
- Sequential Compression Devices (**SCDs**)
- Leg exercises and hydration during travel
- Avoid estrogen-based contraceptives in high-risk patients
- NCLEX Tip:
- Always assess **leg pain/swelling/redness** post-op or in immobile patients and **watch for sudden chest pain or shortness of breath** for PE.

➢ **Compartment syndrome:**

- **Compartment** A medical emergency caused by increased pressure within a **muscle compartment.**
- Leads to decreased blood flow → ischemia → necrosis if untreated.

◊ Causes / Risk Factors:

- Fractures (especially long bones).
- Burns, crush injuries.
- Tight casts, dressings, or bandages.

◊ Key Manifestations:

- Pain (severe, unrelieved by opioids, worse with passive movement).
- Paresthesia (tingling, numbness).
- Pallor (pale, gray, white skin).
- Paralysis / weakness (↓ motor activity).

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- Pulselessness (late sign).

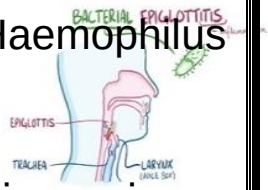
◊ Complication:

- Permanent nerve/muscle damage.
- Amputation if untreated.

◊ Treatment & Nursing Interventions:

- DO NOT elevate the limb above heart level (maintains perfusion).
- DO NOT apply ice (causes vasoconstriction → worse ischemia).
- Remove restrictive items (cast, bandage, dressing).
- Notify provider immediately → this is limb-threatening emergency.
- Prepare for fasciotomy (surgical procedure to relieve pressure).

➢ **Epiglottitis**:



- A life-threatening bacterial infection (often caused by Haemophilus influenzae type B).
- Causes **severe inflammation & swelling** of the epiglottis → airway obstruction.
- Most common in children **ages 2–7** but can also occur in adults.

◊ Clinical Manifestations (NCLEX Priority):

- Sudden onset high fever.
- Severe sore throat, difficulty swallowing (dysphagia).
- Drooling (unable to swallow secretions).
- Stridor (inspiratory).
- Tripod position (child sits leaning forward, chin up, mouth open, tongue out to breathe).
- Anxiety, restlessness → early hypoxia signs.

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◊ Nursing Care / Interventions:

- Airway first – EMERGENCY!
- Do NOT **attempt to visualize throat** (tongue depressor can trigger complete obstruction).
- Keep child calm, avoid procedures that cause crying/agitation.
- Maintain NPO (risk of aspiration).
- Prepare for intubation or tracheostomy (definitive airway management).
- IV antibiotics once airway secured.

◊ Complication:

- Complete airway obstruction → respiratory arrest.

◊ NCLEX Key Point:

- Drooling + Dysphagia + Distress (stridor, tripod position) = Epiglottitis → EMERGENCY.

◊ Sign of airway obstruction:

- **Restlessness,** stridor, drooling **due to** dysphagia, the nurse should prepare **an Endotracheal tube.**

- NCLEX Practice Questions:
- A nurse is assessing a child with suspected epiglottitis. Which action is contraindicated?
- A. Obtaining a throat culture
- B. Providing humidified oxygen
- C. Keeping the child in an upright position

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- D. Preparing for intubation.
- In epiglottitis, **any attempt to visualize or manipulate the throat (tongue depressor, throat swab, culture)** can trigger **sudden complete airway obstruction → contraindicated**.
- The priority is **airway management**: humidified O_2, upright (tripod) positioning, and preparing for intubation.

➢ Smoking Inhalation Injury:

- Happens when **harmful smoke particles** and **gases** are breathed in.
- Causes:
  - inflammation and swelling of the lungs and airway.

◊ Priority Nursing Interventions (NCLEX Tip: Airway First!)

- **Assess airway patency immediately:** Watch for signs of airway swelling; early intubation may be needed.
- **Administer 100% humidified oxygen** via non-rebreather mask.
- **Prepare for early intubation** if airway edema signs appear (stridor, hoarseness, difficulty breathing).
- **Maintain IV access & provide fluids:** Prevent shock and support circulation.
- **Elevate the head of the bed:** Helps reduce airway swelling.
- **Monitor for late complications:**
  - Pulmonary edema, acute respiratory distress syndrome (ARDS), pneumonia.

➢ Mean Arterial Pressure (MAP):

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- Average pressure in the **arteries during one full cardiac** cycle (systole and diastole)

♦ Importance:

- Indicates **how well organs and tissues** are perfused with blood and oxygen.
- Normal range: 70–100 mmHg → adequate perfusion
- Critical target: ≥ 65 mmHg to maintain organ health

♦ Factors Affecting MAP:

- Cardiac Output (CO):
  - ↓ CO (heart failure, shock)
  - ↓ Volume (bleeding, dehydration) → ↓ MAP
  - ↑ Volume (fluid overload) → ↑ MAP

♦ Clinical Significance:

- MAP < 65 mmHg: organs **under perfused** → risk of ischemia & organ failure (kidneys, brain, heart)
- MAP > 100 mmHg: ↑ **heart workload** → long-term damage (stroke, LV hypertrophy)

♦ Shock Management (NCLEX Priority):

- Maintain **MAP ≥ 65 mmHg** in septic, cardiogenic, or hypovolemic shock

♦ Interventions:

- IV fluids → increase volume & cardiac output

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- Vasopressors (norepinephrine, dopamine) if fluids not enough
- Oxygen therapy → reduce tissue hypoxia

♦ NCLEX Key Points:

- MAP is the best indicator of organ perfusion
- Target ≥ 65 mmHg in critically ill/shock patients

➢ **B-type natriuretic peptide (BNP):**

- It **BNP** is a protein released by the **ventricles of the heart**:
  - when they **are stretched** due to **increased volume or pressure**.
  - When the heart is **overfilled or under pressure**, the ventricles release BNP into the blood.
- Measured by:
  - a **blood test** to help diagnose **heart failure (HF)**.
  - **High BNP levels** indicate **heart failure or increased cardiac pressure**

◊ Clinical Use:

- Helps differentiate **heart failure vs. non-cardiac causes** (like pneumonia, COPD) in patients with **dyspnea and fatigue**.
- **BNP testing is ~90% accurate** in diagnosing HF.

◊ Interpretation (NCLEX Focus):

- **BNP < 100 pg/mL → Heart failure unlikely** → look for non-cardiac causes (pneumonia, COPD, anemia, etc.).

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- **BNP > 100 pg/mL** → Suggests **heart failure** (further testing: echocardiography, cardiac workup).
- Higher BNP = worse degree of heart failure.

◊ **Key Points:**

- **Normal:** < 100 pg/mL.
- **Elevated:** Indicates ventricular stretch and fluid overload → heart failure.
- BNP helps guide **treatment decisions** (diuretics, ACE inhibitors, etc.).

➢ **Aortic Dissection:**

- A Life-threatening emergency caused by a **tear in the inner layer of the aorta**, allowing blood to flow between vessel wall layers.

◊ Risk Factors:

- **Uncontrolled hypertension** (most common)
- Atherosclerosis
- Male gender, age > 60

◊ NCLEX Key Assessment Findings:

- **Sudden, severe chest pain** described as *sharp, ripping, or tearing*.
- Pain radiates to the **back (between shoulder blades)** or to the abdomen.
- **Blood pressure difference** between right and left arm. big difference (> 15–20 mmHg)
- Signs of **hypovolemic shock** if rupture occurs:

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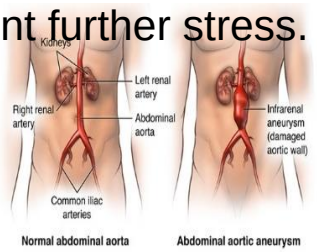
- hypotension, tachycardia, weak pulses, altered mental status.

◊ Complications:

- Stroke or organ ischemia
- Aortic rupture → death

◊ Nursing Priorities (NCLEX focus):

- **Lower blood pressure immediately** with IV beta-blockers (e.g., labetalol, esmolol) to reduce stress on the aortic wall.
- Prepare the client for **emergency surgical repair** if the ascending aorta is involved.
- Monitor vital signs, peripheral pulses, neurological status.
- Provide IV opioids for pain relief (after stabilizing BP).
- Maintain bed rest and keep the client calm to prevent further stress.



➢ **Abdominal aortic aneurysm:**

- An abdominal aortic aneurysm (AAA) is an **enlargement or bulge** in the part of your **aorta** that extends through belly or abdomen (abdominal aorta).
- **The bulge** forms in an area where your **aorta's wall** has grown weak.
  - Normally, **aorta walls are strong** and flexible enough to manage the **constant pressure of blood heart pumps out**. But various factors like **aging**, tobacco use, can weaken aorta wall. When **the wall is weak,** it can't handle the forces of blood flow **as well as it should.**

◊ Risk Factors:

- Hypertension

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- Atherosclerosis (plaque buildup)
- Smoking (**major risk factor**)
- Older age (>60 years)
- Male gender
- Family history of aneurysm.

♦ Signs of Ruptured AAA (Pre-Op / Emergency):

- Hypotension / dizziness
- Pulsatile abdominal mass (near umbilicus)
- Sudden severe abdominal or back pain

♦ Surgical Repair (Endovascular / Open Repair):

- **Goal:** Prevent rupture of the aneurysm
- **Procedure:**
- Small incision in groin over femoral artery
- Guide wire inserted to aneurysm
- Endovascular stent graft placed to reinforce weakened wall

♦ Post-Operative Monitoring (Critical NCLEX Points):

- **Signs of Graft Problems:**

1. Graft Blockage (Occlusion):

- Weak (+1) or absent distal pulse
- **Urine output < 30 mL/hr** (renal hypoperfusion)
- Possible limb pain or weakness

- **2. Graft Rupture (Leak / Hemorrhage)**
- Increasing abdominal girth
- Pelvic, back, or groin pain (sudden, severe)
- Scrotal ecchymosis
- Hypotension / shock

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➢ Chronic Subdural Hematoma:

- Bleeding **under the dura mater** (protective brain layer).
- **Cause:**
  - Slow venous bleed, often after minor head injury, especially in elderly.

♦ Manifestations:

- Headache
- Difficulty walking / gait disturbance
- Memory loss
- Decreased level of consciousness / confusion

♦ Complications:

- Increased intracranial pressure (ICP)
- Permanent neurological deficits if untreated

➢ 2. Subarachnoid Hemorrhage (SAH)

- Bleeding into the subarachnoid space (between brain and arachnoid membrane).

◊ Causes:

- Ruptured cerebral aneurysm (**most common**)
- Head trauma

◊ Key Manifestations:

- Sudden, severe headache **(“worst headache of my life”)**

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- Nausea and vomiting
- Nuchal rigidity (stiff neck)
- Sudden loss of consciousness or seizure

♦ NCLEX Nursing Focus:

- Emergency management: airway, oxygen, IV access
- Blood pressure control (keep systolic < 160 mmHg)
- Monitor for ICP: decreased LOC, headache, vomiting, pupillary changes

♦ NCLEX Differentiation:

- **CSDH:** Slow venous bleed, gradual onset, elderly after minor trauma → headache, gait disturbance, confusion
- **SAH:** Sudden arterial bleed, rapid onset, "worst headache," high mortality, often from ruptured aneurysm
- **Tip:**
  - Gradual change after a fall → think CSDH
    Sudden severe headache with stiff neck → think SAH

➢ **Seizures:**

- **A seizure** is a sudden, uncontrolled **electrical disturbance** in the brain that can cause changes in behavior, movements, feelings, and levels of consciousness.
- Nursing Management: During a Seizure:
- **Stay with** the patient and provide safety.
- **Protect** the head and move objects away.

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- **Do NOT** restrain or force anything into the mouth.
- **Position o**n the side (lateral) if possible to maintain airway and prevent aspiration.
- **Time the seizure** and observe the type of movements, progression, etc.
- Nursing Management: After a Seizure (Postictal Phase)
- **Check airway**, breathing, and circulation (ABCs).
- **Assess vital signs** and neurological status.
- Reorient the patient (they may be confused).
- **Document seizure** characteristics (duration, body parts involved, any triggers).
- Ensure safety (the patient may be drowsy or weak).
- A client with a history of seizures receives an IV dose of lorazepam for acute seizure activity. Which assessment requires immediate nursing intervention?
- A. The client's oxygen saturation is 88%
- B. The client's blood pressure is 110/70 mmHg.
- C. The client's heart rate is 90 beats per minute
- D. The client appears drowsy and is resting quietly.
- Rationale: An SpO_2 of 88% indicates potential respiratory depression, a serious side effect of lorazepam. The nurse must act quickly to ensure a patent airway and adequate oxygenation.

➢ **Intussusception:**

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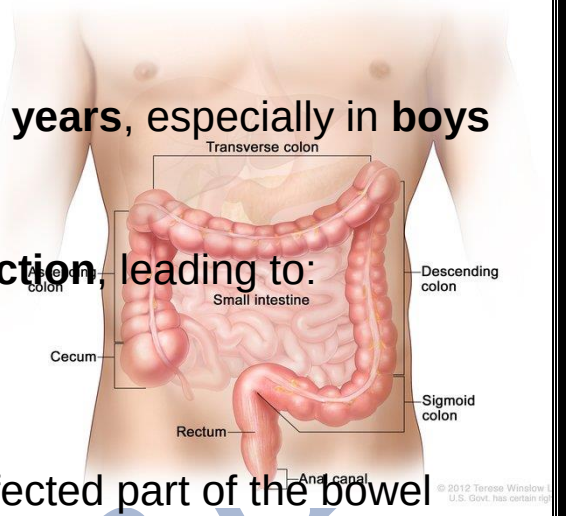
- A **medical emergency** where one part of the **intestine folds into another part**, similar to how a **telescope collapses** (this process is called "telescoping").

  Most common between **6 months and 3 years**, especially in **boys**



◊ What happens:

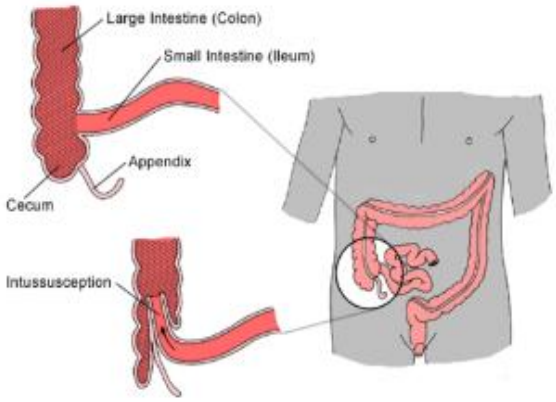
- The telescoping causes a **bowel obstruction**, leading to:
  - **Inflammation**
  - **Edema (swelling)**
  - **Decreased blood supply** to the affected part of the bowel

◊ Complications:

- **Ischemia and necrosis** (death of bowel tissue)
- **Infection**
- **Perforation** (tear in the bowel), which may lead to **peritonitis**

◊ Most commonly affects:

- The **small intestine.**



◊ Manifestation:

- **Red**, jelly like stool.
- Abdominal pain
- **Bilious vomiting**
- Screaming and drawing knees up to the chest.
- **abdominal mass in** upper quadrant called **Sausage- shaped**
- **Stool mixed** with blood and mucus.

◊ Nursing intervention:

- **Administer IV fluid.**
- Keep NPO
- **Air or Barium Enema** (First-line treatment!):

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Classification: Internal Use

- **Air enema:** diagnostic and therapeutic X-ray test used to visualize the colon and rectum.
- Safer than barium if perforation occurs → only air escapes, while barium could leak and cause peritonitis

- **Barium Enema**:
  - Diagnostic and therapeutic X-ray involves inserting **barium contrast** into the rectum to highlight abnormalities

◊ Appropriate teaching:

- Inform parents that the cause is **unknown.**
- Explain that **surgery** may be indicated if air enema is unsuccessful.
- **Recurrence** is low after **treatment with air enema or surgery.**

➢ **Small bowel obstruction:**

- **A bowel obstruction** is a partial or complete blockage of your small intestine or large intestine (bowels).

◊ The most common causes include:

- **Adhesions** Scar tissue from previous surgeries (most common cause).
  - **Adhesions** are **scar tissue or fibrous bands** that form after abdominal surgery.
  - This scar tissue can **stick parts of the intestines together** or to other nearby organs.
  - When the intestines get stuck, it can **block the passage of food and fluids → bowel obstruction**.

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- **Adhesions are the most common cause of bowel obstruction in adults** who have had previous surgeries.

- **Tumors** – Can block the intestine from the inside or compress it from the outside.
- **Intussusception** – A part of the intestine folds into another segment.

◊ Sign and symptoms:

- Abdominal pain, vomiting
- Inability to pass flatus or stool.
- Hyperactive bowel sound
- Abdominal bloating and distention.
- All these signs may indicate bowel obstruction. It's a life threating can lead to **dehydration and electrolytes imbalance.**

◊ Complication

- **Ischemia** (a less-than-normal amount of blood flow to part of your body. This lack of **blood flow means your tissues** aren't getting the oxygen they need).
- **Necrosis** (the death of the cells in your body tissues)
- **Bowel perforation** (hole in your large intestine, also known as a bowel perforation, can cause stool **to leak into your abdomen**).

➢ **After any abdominal surgery:**

- 1-Nasogastric tube may be inserted **after abdominal surgery** to:
  - **Decompress the stomach (remove air, fluid, or gastric contents from the stomach).**

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- **Purpose:**
- Prevent **distension**
- Relieve **nausea and vomiting**.
- Nurses should **monitor the NGT output**, Check **colour, amount, and consistency,** If the patient complains of nausea, the **first nursing action** is to **check NGT patency**, not to give antiemetics right away.

- 2. Risk for Paralytic Ileus:
- A **common complication** after abdominal surgery.
  - It is a temporary stoppage of bowel movement (peristalsis).
- Signs and Symptoms:
  - Absent or hypoactive bowel sounds
  - Abdominal bloating/distension
  - No gas or stool passage
  - Nausea and vomiting

◊ Nursing Interventions (NCLEX Focus):

- **Keep the patient NPO** (nothing by mouth) until bowel sounds return.
- **Assess bowel sounds** in **all four quadrants** before advancing the diet.
- **Encourage early ambulation** – walking stimulates bowel activity.
- Provide **IV fluids and electrolytes** as needed to prevent dehydration.
- When bowel sounds return, **advance the diet gradually**
  - Start with **clear liquids**, then move to **full liquids**, then **soft**, then **regular** diet.

- 3-Risk for Constipation is also common post-op due to:

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- Use of **narcotics**, **aesthesia**, and **decreased mobility**
- Encourage **fluids**, **Fiber**, and **ambulation**

◊ NCLEX Exam Tip:

- If the patient develops **severe abdominal pain** with **rigid or hard abdomen**, suspect **peritonitis** → **Notify the healthcare provider immediately** (emergency).

➢ **Syndrome of inappropriate antidiuretic hormone (SIADH)**:

- SIADH is a condition in which the body produces excessive antidiuretic hormone (ADH), causing water retention and **dilutional hyponatremia.**
- **ADH (Antidiuretic Hormone) / Vasopressin** Hormones Released by the Posterior Pituitary gland:
  - **Function:** Regulates the body's water balance by telling the kidneys to **retain water**.

◊ Pathophysiology:

- **Excessive ADH** → Kidneys retain water → Decreased urine output & increased urine osmolality.
- Low serum sodium, Potential for cerebral edema if severe hyponatremia persists.
- Cause of SIADH:
- Malignancies (especially small cell lung cancer).
- Central nervous system disorders (head trauma, stroke, infections, Guillain-Barré syndrome).

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Classification: Internal Use

➢ Neonatal sepsis:

- **Neonatal sepsis** is a life-threatening infection in newborns that occurs within the first 28 days of life.

◊ Early- Classification:

- Early-Onset Sepsis (EOS):
- Occurs within 72 hours of birth.
- Usually caused by maternal transmission (from mother to baby).

◊ Late-Onset Sepsis (LOS):

- Occurs after 72 hours.
- Often caused by environmental exposure.

◊ Cause:

- Most commonly bacterial infections.

◊ Medical Emergency:

- Any newborn suspected of sepsis requires urgent antibiotic treatment.

◊ Special Consideration for Newborns:

- Adults: Infection → usually fever (immune system responds).
- Newborns:
    - Immature immune system → cannot regulate temperature well.
    - May not show fever.
    - Sometimes hypothermia (low body temperature) is the only sign of serious infection.

◊ Sign and symptoms:

- Temperature instability (fever or hypothermia).
- Fast or slow heart rate.
- Fast breathing or shortness of breath.
- Vomiting.

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- Diarrhea.
- Reduced sucking/difficulty feeding.

➢ Septic arthritis in children:

- Septic arthritis is a **bacterial infection of the joint space**, leading to **inflammation, severe pain, and potential joint destruction** if not treated promptly.
- It is considered a **paediatric emergency** immediate diagnosis and treatment are essential to prevent permanent damage

◊ The most common cause:

- Most Common Cause: Staphylococcus aureus, including MRSA.

◊ Risk Factors:

- Neonatal sepsis
- Immunodeficiency
- **Sickle cell disease**
- Recent **upper respiratory tract infection (URTI)**
- Invasive procedures
- **Infants and older adults** are especially vulnerable
- People with **artificial joints** are also at risk.

◊ Symptoms in Children:

- **Joint pain** often in the **hip** or **knee.**
- **Fever**
- Refusal to bear weight or walk
- **Swelling**, **redness**, and **warmth** over the affected joint
- A child may **hold the hip in a flexed, abducted, and externally rotated position** to relieve pressure

◊ Important Clinical Insight:

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- The **knee** is most commonly affected but it may also affect **hips, shoulders, ankles**, or other joints
- **Hip involvement** is especially concerning because it's harder to examine and diagnose

◊ Complications if Untreated:

- Joint destruction
- Permanent deformity
- Chronic arthritis

◊ NCLEX Nursing Considerations:

- **Urgent referral** to orthopedic or pediatric infectious disease team
- Prepare for **joint aspiration** to confirm diagnosis
- Administer **IV antibiotics immediately after cultures**
- Pain management
- Monitor for signs of **systemic infection or sepsis**

➢ **Liver biopsy**

- **is a diagnostic procedure** used to collect a sample of liver tissue to diagnose conditions such as **hepatitis, cirrhosis, liver cancer, and fatty liver disease.**
- Pre-Procedure Nursing Care (NCLEX Tip: Think "Bleeding Risk):
  - **Verify informed** consent (Invasive procedure)
  - Assess for bleeding risk (Check PT/INR, platelets – liver disease may cause clotting issues)
  - Ensure the client is NPO for 6-8 hours before the procedure
  - Position the client supine with right arm above the head
  - Administer sedatives & local anesthesia as prescribed.

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- Post-Procedure Nursing Care (NCLEX Tip: Prevent bleeding!)
  - **Position the client on their right** side for at least 2-4 hours (applies pressure to the biopsy site)
  - Monitor vital signs (tachycardia & hypotension = internal bleeding!)
  - Assess for signs of bleeding (abdominal pain, distension, hematoma at site)
  - Avoid coughing, straining, or lifting heavy objects for 1-2 weeks
  - Monitor for peritonitis (fever, severe abdominal pain, rebound tenderness).

➢ **Amyotrophic lateral sclerosis:**

- **A nervous system disease** that affects **nerve cells** in the **brain** and **spinal cord**.
- ALS causes **loss of muscle control** the disease gets worse over time.

◊ Signs and symptoms:

- Fatigue, muscle spasm and progressive muscle weakness.
- Difficult swallow and difficult speaking.
- **Respiratory failure.**

◊ Treatment focus on mange symptoms:

- Respiratory support with **BIPAP or tracheotomy**
- Feeding tube for eternal feeding
- Mobility assistance, walker or wheelchair.

⇨ Big Safety:

- **Dysphagia** that's difficult swallowing then progress into Difficult of speaking.

⇨ Priority finding:

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- **Increased respiratory Secretions** that eventually kill the Client.

➢ Hypospadias:

- A **congenital condition** where the **urethral opening** is located on the **underside (ventral side)** of the penis instead of at the **tip.**

◊ Surgical Management:

- **Surgical correction** is usually performed between **6–12 months of age**.

◊ Goal:

  - Reposition the urethral opening to the tip of the penis and achieve normal urination and appearance.

◊ Postoperative Nursing Care:

- A **urinary catheter or stent** is often placed to:
  - Maintain urethral patency
  - Allow healing
- **Monitor urine output closely:**
  - **Urine output is a key indicator** that the urethra is open and functioning
- **No urine for >1 hour** may indicate:
  - **Kinked catheter**
  - **Obstruction**
  - **Urinary retention,** Report this **immediately** to the healthcare provider
- **Encourage oral fluids** to promote good urine flow

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➢ Priapism:

- **Priapism** is a **prolonged penile erection** lasting more than 2 hours (usually defined as > 4 hours).
- It is not related to sexual stimulation and is often painful.
- Pathophysiology:
- Caused by trapping of blood in the erectile tissue leading to:
    - Poor venous drainage.
    - Tissue hypoxia
- Risk of ischemia and necrosis (tissue death)
- Clinical Emergency:
- Priapism is a urologic emergency. If untreated, it may lead to permanent erectile dysfunction due to ischemic injury.
- Common Causes:
- **Cause**: Most often related to **Sickle Cell Disease** (abnormal red blood cells block blood flow in the penis)
    - Sickle cell disease (Common in boys **5–18 years**, especially before and during puberty
- Spinal cord injury.

◊ Symptoms:

- Persistent erection (often > 4 hours)
- Painful
- May appear dusky or cyanotic in later stages.

➢ Hypertensive encephalopathy:

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- **Hypertensive encephalopathy** is a life-threatening condition caused by a sudden and severe increase in **blood pressure**, leading to **cerebral edema and neurological symptoms**.
- It is a type of **hypertensive emergency** requiring immediate intervention to prevent permanent brain damage.

⇨ Etiology:

- Severe hypertension (SBP >180 mmHg and/or DBP >120 mmHg)
- Chronic hypertension with sudden BP elevation
- Kidney disease (renal failure)
- Preeclampsia/eclampsia.

⇨ Clinical Manifestations (NCLEX Priorities):

- **Neurological Symptoms:**
  - Severe headache
  - Altered mental status (AMS) → Confusion, agitation
  - Seizures
  - Blurred vision, papilledema (optic disc swelling)
  - Coma (if untreated).
- **Cardiovascular Symptoms:**
  - Severe hypertension (SBP >180, DBP >120 mmHg)
  - Chest pain, dyspnea (if concurrent heart failure).

⇨ Management (NCLEX Priorities – Rapid BP Reduction!)

- **Administer** IV Antihypertensives (PRIORITY!).
- **Monitor** Neurological Status & BP Closely.
- Fluid Management (Prevent Organ Damage).

➢ **Cauda Equina Syndrome:**

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- **Cauda Equina Syndrome (CES)** is a neurological emergency caused by compression of the **cauda equina** (a **bundle of spinal nerve** roots at the **lower end of the spinal cord**). It leads to severe motor and sensory deficits, including bowel and bladder dysfunction and perineal numbness**.**
- **The cauda equina nerves** communicate with your **legs and bladder**.

⇨ Etiology (Causes & Risk Factors):

- **Large herniated lumbar disc** (Most Common - L4-L5, L5-S1)
- Spinal tumors
- Trauma (fractures, dislocations, penetrating injuries)
- Spinal epidural hematoma (after lumbar puncture or trauma)
- Spinal abscess (infection)

⇨ Manifestation:

- Bladder dysfunction (urinary retention, incontinence).
- **Severe low back pain** (often bilateral) Sexual dysfunction (loss of sensation or erectile dysfunction).
- Bilateral leg weakness or paralysis Bowel dysfunction (fecal incontinence, constipation).

⇨ Treatment (NCLEX Priorities):

- **Surgical Emergency – Immediate Decompression:**
  - Emergency **laminectomy or discectomy** to relieve pressure on the cauda equina
  - Best outcomes if surgery is performed within 48 hours!
- **Supportive Care:**
  - Catheterization if urinary retention is present
  - Pain management (IV steroids, NSAIDs, opioids if needed)
  - Physical therapy post-surgery

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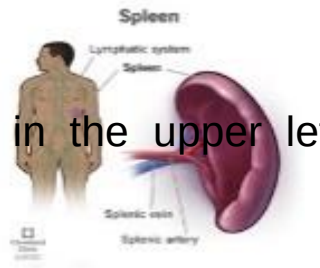
➢ Spleen:



- **The spleen** is a highly vascular organ located in the upper left quadrant (LUQ) of the abdomen.

⇨ It plays a key role in:

- **Immune function** – Filters blood, removes old RBCs, and produces lymphocytes.
- **Blood storage** – Stores platelets and RBCs.
- **Recycling iron** – Breaks down old RBCs and recycles iron for new hemoglobin production.
- **Response to infections –** Helps fight encapsulated bacteria (e.g., Streptococcus pneumoniae).

⇨ NCLEX High-Yield Topics Related to the Spleen:

- **1. Splenic Rupture – Causes:**
  - Blunt abdominal trauma (e.g., car accidents, sports injuries)
  - Enlarged spleen (splenomegaly) due to leukemia, or liver disease
  - Anticoagulant therapy (increased bleeding risk)

⇨ Signs & Symptoms:

- Life-threatening internal bleeding → Hypovolemic Shock.
- Hypotension, tachycardia, pallor, dizziness.
- Abdominal distension, rigidity, rebound tenderness
- NCLEX Priority Actions:
- **ABCs –** Monitor for signs of hemorrhagic shock!
- IV fluids + Blood transfusion (if needed)
- Prepare for emergency surgery (splenectomy or repair)
- Avoid palpating the abdomen aggressively (may worsen bleeding!).

⇨ Splenectomy – Post-Op Considerations:

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- Patients who undergo spleen removal are at high **risk of infections**
- **NCLEX Priorities:**
  - Vaccinations Required:
  - Long-term antibiotic prophylaxis (especially in children)
  - Monitor for post-splenectomy sepsis (fever, chills, infection risk).

➢ **Antibiotic:**

- Clients will receive the first dose of antibiotic risk for **allergy reactions,** including **anaphylaxis.**
- **During anaphylaxis** the body releases a large amount of **histamine** which causes **bronchial contraction** and **vascular collapse** that can rapidly progress to **respiratory arrest and shock.**

⇨ Sign of anaphylaxis:

- Itching, wheezing, bronchospasm, swelling, hypotension.

◊ Treatment:

- **Epinephrine (adrenaline)** to reduce the body's allergic response
- **Oxygen,** to help breathing.
- **Intravenous (IV) antihistamines**.
- **Cortisone** to reduce inflammation of the air passages and improve breathing
- **A beta-agonist** (such as **albuterol**) to relieve breathing symptoms

➢ **Metoprolol drug:**

- **is a beta-blocker** that affects the heart and circulation (blood flow through arteries and veins).

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- **Metoprolol** is used to treat angina (chest pain) and hypertension (high blood pressure).
- **Metoprolol** is also used to lower your risk of death or needing to be hospitalized for **heart failure.**

⇨ The side effects:

- **Bradycardia** and **hypotension.**
- **You must stop** and notify HCP if the heart rate is less **than 60 even** sign of cardiac symptoms as dizziness and nausea.

➢ **Solifenacin drug:**

- Anticholinergic

◊ Indication:

- Treats overactive bladder by relaxing bladder muscles.
- Improves ability to control urination.

◊ Benefits:

- Reduces urinary leakage (incontinence).
- Reduces urgency (sudden need to urinate).
- Reduces frequency (how often patient needs to urinate).

◊ Common Expected Side Effects:

- Dry mouth
- Constipation.

◊ Complications / Safety Concerns (need caution):

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- Blurred vision → can impair ability to see clearly
- Dizziness → can cause loss of balance
- These increase **risk of accidents/falls** → that's why caution with driving or operating machinery is advised

◊ Nursing Considerations:

- Encourage fluids and dietary fiber to help with constipation.
- Caution with driving or operating machinery (may cause blurred vision, dizziness).

➢ **Celecoxib drug:**

- **NSAID (Nonsteroidal Anti-Inflammatory Drug)**

◊ Indications:

- Used to **relieve pain and inflammation** in conditions such as:
  - Osteoarthritis
  - Rheumatoid arthritis
  - Menstrual pain

⇨ NCLEX High-Yield Warnings:

- 1-Cardiovascular Risk:
- **Increases the risk of fatal heart attack or stroke**, even in patients with no prior heart disease.
- **NEVER use before or after CABG surgery** (Coronary Artery Bypass Graft).

◊ Watch for these signs of CV complications:

- Chest pain

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- Shoulder or back pain
- Nausea
- Nurse should immediately obtain an ECG and check cardiac enzymes.

- 2- GI Bleeding Risk:
- Can cause **serious GI bleeding, ulcers, or perforation**, even without warning.
- Risk increases with **age**, **alcohol**, **anticoagulants**, or **history of ulcers**.
- Do **NOT** give to patients with **active GI bleeding** or **history of peptic ulcer disease**.
- Nursing Considerations:
  - Take with food to reduce GI upset.
  - Assess for signs of **GI bleeding** (e.g., black tarry stools, vomiting blood).
  - Monitor **blood pressure** regularly.
  - Educate patients to report chest pain, shortness of breath, or severe abdominal pain.

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4-Delegation

⇨ **RN Never Delegate: What U EAT.**

◊ U→Unstable Client:

∇ RNs must not delegate care for **unstable clients**.

- These clients require frequent assessments, complex decision-making, and rapid response to changes.

∇ Examples of Unstable Clients:

- New Admission: which Not yet assessed by RN.
- Sudden Change: e.g., sudden drop in BP, confusion, SOB.
- Worsening Condition: e.g., increasing chest pain, decreased LOC.
- Return from Procedure: Risk of complications (e.g., post-cath lab, endoscopy, surgery).
- Fresh Post-op: Within 24 hours of surgery—monitoring for bleeding, infection, or anesthesia effects.

⇨ E→**Evaluation:**

∇ Example 1: Interpreting Blood Values:

- **Only the RN** is allowed to interpret lab results (like CBC, electrolytes, ABGs). It requires **clinical judgment** to determine what's normal or abnormal, and what action should be taken.

∇ Example 2: Trending Vital Signs:

- The RN looks at **multiple sets** of vital signs to identify a **trend** (e.g., gradually dropping blood pressure or rising heart rate). This helps detect patient **deterioration early.**

∇ Linked Reassessment:

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- If the patient's vital signs change or if they complain of a new symptom the RN must **reassess**. This reassessment is directly connected to the clinical **evaluation process.**

⇨ **A→Assessment:**

∇ Do not delegate **initial, First, Primary assessment**.

∇ You can delegate **secondary Follow up assessment**.

⇨ **T→Teaching:**

- Only RN Can do **initial, First, Primary teaching**.
- Whenever you are delegated:
  - Always Follow up and reassess tasks that you delegate.
  - IF YOU DON NOT this is **negligence**.

∇ **So, what is the Scope of practice for RN:**

- Initial Teaching:
  - The RN is **responsible for beginning** any patient education. This includes teaching at the **start of care**, when there's a new medication or diagnosis, and at discharge.
    - LPNs can only **reinforce teaching** after the RN has already done it.
- Clinical Judgment:
  - **The RN must** use critical thinking and decision-making. This includes **interpreting lab values**, vital signs, and changes in patient condition. If the patient's condition changes, the RN must **perform the reassessment.**
- Initial Assessment:
  - Only the **RN can perform the first** full physical and health assessment when a patient is admitted or transferred.

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        - LPNs may assist with follow-up assessments only if the patient is stable.

- Blood Transfusions:
    - The RN is **responsible for starting** a blood transfusion and must monitor the patient closely for the first 15 minutes. Also, two RNs are required to verify the blood before starting.
        - LPNs or LVNs **cannot verify.**
- IV Medications:
    - The RN can administer IV push medications, manage IV drips (like insulin or heparin), and care for central lines.
- Unstable Patients:
    - The RN must care for any unstable or post-operative patients, including those with new or changing conditions.
- Admission of a New Patient:
    - RNs are responsible for taking the full history, performing the assessment, and developing the plan of care. This cannot be delegated.

➢ **What we can delegate to LPN, LVN?**

- LPN:
    - Licensed Practical Nurse.
- LVN:
    - **Licensed Vocational Nurse** are essentially the same role.
- **LVN**: Used in California and Texas.
- **LPN**: Used in all other states.
- Both work **under the supervision of an RN** and have a **narrower scope of practice**.

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∇ Scope of Practice for LPN/LVN (What They Can Do):

- Their tasks are mostly **secondary**, meaning they work with **stable** patients or **after** the RN has already performed the initial assessment or teaching.

◊ Examples of LPN/LVN Responsibilities:

- **Follow-up / Reassessment:**
  - Allowed if the patient is **stable**.
  - Example: Monitoring a post-op patient 3 days after surgery with no complications.
- **Reinforcing Teaching:**
  - They can **reteach** what the RN already introduced.
  - Example: Reminding a patient how to self-administer an IM injection.
- **Medication Administration:**
  - **Allowed**: Oral meds, IM injections, subcutaneous meds.
  - **Not Allowed**: IV push meds, IV fluids, or any medication through central lines.
- **Sterile Procedures They can perform:**
  - Wound care
  - Suctioning
  - Urinary catheterization.
  - Ostomy care
  - Dressing changes
  - Ensuring tube patency (e.g., NGT)
  - Enteral feeding
  - Neurovascular checks
  - Auscultating lung/bowel sounds

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- **Monitoring:**
  - They can **monitor** RN findings (but not interpret them).
  - Example:
  - Monitor flow rate, drainage in continuous bladder irrigation.
  - Monitor stoma **color** (but NOT ASSESS (Nursing Judgment) a new stoma).
  - Monitor pain level and report changes.
- **Gastrostomy Tube (G-tube):**
  - Can **crush and administer** multivitamins or meds through the G-tube.

◊ What You Cannot Delegate to LPN/LVN:

- These tasks **require clinical judgment**, and are **RN-only**:
  - No **evaluation** (they cannot interpret data or make decisions)
  - No **initial assessment**
  - No **initial teaching or discharge education**
  - No **starting or initiating blood transfusion**
  - No **vital sign monitoring within the first 15 minutes** of transfusion
  - No **titrating IV drips** (e.g., adjusting insulin or heparin drips) because it's unstable care
  - No **central line medication administration**
  - No **assessing** a newly placed stoma (e.g., perfusion or circulation status)

◊ Key NCLEX Tip:

- Always remember: if it's **initial**, **unstable**, or requires **critical thinking**, it belongs to the **RN**.

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- LPNs/LVNs can do **routine, stable, and follow-up care** under supervision.

➢ **What about UAP?**

- UAPs are **Unlicensed Assistive Personnel** members of the healthcare team.
- They work **under the supervision of the RN or LPN**.
- Their role is limited to **non-invasive**, routine, and **basic care** tasks.

∇ For UAPS WE Cannot do three things:

- Teach.
- Assess, check, or determine (UAPs cannot interpret or make decisions).
- Administer medications (Including topical creams or oral meds)

∇ So, what is the Scope of practice for UAP? VAPER

- V→Vital signs
- A→Ambulation
- P→Position changes
- E→Eating Feeding

◊ R→Recording is input and output.

- **ADLs (Activities of Daily Living):**
  - Bathing, grooming, toileting, dressing
  - Client hygiene, oral care, perineal care, postmortem care
  - Swaddling a newborn after a diaper change
- **Routine Monitoring for Stable Clients Only:**
  - Take and **document** vital signs (NOT for post-op or blood transfusion clients)

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- Record **input and output (I&O)**
- Document pulse oximetry (e.g., for a client with COPD)
- Measure urine, empty Foley bag (but NOT collect sterile samples)

- **Basic Mobility and Positioning:**
  - Ambulating clients
  - Position changes (unless spinal injury/logrolling is required)
  - Reapply nasal cannula or compression devices (SCDs)
- **Feeding (if oral and safe):**
  - Assist stable patients with eating
  - Provide food/drink (but NOT for unstable or high-risk clients)
  - Feeding via Gastrostomy tubeis not allowed
- **Specimen Handling:**
  - Collect urine/stool samples (NOT sterile ones like from Foley)
  - Transport specimens and pick up blood products (but not administer them)
- **Linen & Comfort Care:**
  - Change bed linens (except in spinal injuries)
  - Apply routine skin care (non-medicated as antifungal cream, antibiotic ointment, barrier creams with zinc oxide))
  - Reposition or comfort stable clients
  - **Allowed to provide basic skin care such** as:
  - Bathing and cleaning the skin.
  - Keeping the skin clean and dry.
  - Changing wet clothes or linens
- **Communication:**

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Classification: Internal Use

- **Report** any changes in client condition to the RN (but not interpret or act on them)

∇ But what is out of his scope:

- **Give juice** to a hypoglycemic patient → Must notify the RN first
- **Assign staff** to duties or coordinate care
- **Notify family** of death or change in condition
- **Collect specimens from Foley catheters** → Sterile technique required
- **Communicate with X-ray/other departments** regarding precautions or care
- **Assist with health history** → Only licensed staff should do this
- **Measure compression stockings** → Requires assessment
- **Feed via gastrostomy tube** → Requires trained/licensed staff
- **Logrolling after spinal surgery or trauma** → Needs trained team
- **Care for patients within 24 hours post-stroke** → Considered unstable

⇨ **Example:**

⇨ The **nurse and the UAP** enter the client's room and discover that the client is unresponsive which action according to American Heart Association guidelines should the nurse **assign to the UAP first."**

- A. Ask UAP to check whether the client is asleep.
- B: Tell the UAP to perform cardiac compressions.
- C: Instruct the UAP to get the crash cart.
- D: Request the UAP to put the client in a recumbent position.

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Classification: Internal Use

5/ ETHICS

➢ **HIPPA:**

- **The Health Insurance Portability and Accountability** Act of 1996 law that **protects patient privacy** and ensures the **security of healthcare information.**

⇨ NCLEX (National Council Licensure Examination):

- is the standardized exam for nursing licensure in the U.S.

⇨ How HIPAA relates to the NCLEX:

- **Confidentiality**: Nurses must keep patient information confidential.
  - When you take the NCLEX, the exam ensures that you understand the importance of maintaining confidentiality in every aspect of patient care.
- **Protection of Health Information:** HIPAA requires that patient health information, including **medical records, test results, and personal information**, be kept secure and shared only with authorized individuals who are part of the patient's care team.
- **Handling of Patient Data**: During your career as a nurse, you'll need **to adhere** to HIPAA rules when accessing, sharing, or documenting patient data, and the NCLEX exam tests knowledge on how to handle such situations.

⇨ Relationship Between HIPAA and NCLEX:

- **HIPAA** is an important topic covered in the NCLEX exam because nurses must understand patient confidentiality and legal responsibilities.

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- NCLEX questions may test your knowledge of HIPAA regulations, such as **handling patient information, privacy rules**, and security measures.

◊ The primary goal of the law is:

- **Protect the confidentiality and security of healthcare information** and help the healthcare industry control administrative costs.

◊ **Which Violates HIPAA?**

- Always think about Safety It's **over sharing.**

◊ Example:

  - Tell the hospital transporter very **specific details about Labs and** diagnose for the patient.
  - **A chemo nurse** from another unit who asked **about client information** stat that "this client my husband co-worker.
  - Sharing **username and password** to supervision even directly.

◊ Discussing a patient's condition in the hospital cafeteria or a public area:

- Violation: Others may overhear private patient details.
- Solution: Discuss patient cases in private areas like offices or conference rooms.

◊ Leaving patient files or medical records open on the reception desk:

- Violation: Unauthorized individuals might see sensitive information.
- Solution: Store records securely or use electronic systems with password protection.

◊ Posting patient photos or information on social media:

- Violation: Even if names are hidden, sharing any patient-related details without consent is a direct HIPAA violation.

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- Solution: Never post patient information without written consent.

◊ Discussing a patient's test results with their family without permission:

- Violation: Patient information should not be shared without their consent unless legally required or in an emergency.
- Solution: Always get written authorization before sharing patient details with others.

◊ Calling a client's full legal first and last name in the waiting room:

- **Potential HIPAA Violation**: While not always a violation, using full names publicly may expose patient information. A better approach is to call first name only or use a patient number.

◊ Two LPNs discussing activities of daily living (ADLs) in a crowded elevator:

- **Potential HIPAA Violation**: Even if no specific patient information is mentioned, discussing patient care in a public space where unauthorized **people can hear is risky**.
- Best practice: Keep patient discussions private, in a secure area.

◊ **NCLEX Tip:**

- Remember the "**Minimum Necessary Rule**," which means only sharing the minimum amount of information needed to complete a task.

◊ **NOT Violate HIPPA?**

- **Mean to keep confidentiality** for the client's information which means **protect health information.**
- Team members directly involved with care **NO over sharing** on personal information.

◊ Example:

- Tell a visitor to **wear a mask** because the client on isolation.

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- Discussing with other nurse “that you give report to her in semiprivate room as long as **reasonable measure by closing curtain**.
- UAP tell the client **take care now** after discharge, Not HIPPA because any employee can provide **socially acceptable well wishes**.
- Visitors talk **in the waiting room** and **say the client is alcoholism**, Not HIPPA because HCP or a nurse are **not required to censor visitor conversation.**

◊ **Scenario:**

- You are a nurse working in a hospital and you have just finished providing care for a patient who underwent surgery. **While you are on your lunch break**, you run into a coworker in the breakroom, and they ask how the surgery went.

◊ **Correct Response (HIPAA-compliant):**

  - You should not share any patient information. You respond, "I can't share any details about that patient, as their information is confidential. You’ll need to speak with the attending doctor or access the patient’s records through the proper channels."

◊ **Incorrect Response (HIPAA violation):**

  - You respond, "Oh, the surgery went well. The patient had a bit of a complication, but they’re recovering fine now."
  - **Why is the second response a violation of HIPAA?**
  - Patient confidentiality: You disclosed patient information without the patient’s consent.
  - Unauthorized access: You shared specific details about the patient's condition outside of the proper medical channels.

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Classification: Internal Use

Ethical Principles:

➢ 1-Abandonment.

- **If a nurse is caring** for a patient and leaves their shift early without notifying anyone or without arranging for another nurse to take over, that is considered abandonment.
- That means you left the client without **endorsement.**
- The nurse is **legally and ethically** responsible for the patient's safety until proper handoff occurs.

◊ Example:

- You take care of the client, and you just leave the unit without giving someone a report or transferring care to another.
- Leaving the unit on a family emergency without transferring Care or giving a report to another nurse.

➢ 2-Negligence:

- A failure to provide the **standard of care** that a reasonable person would expect, leading to **patient harm.**
- Who can commit it?
  - Any **healthcare worker** including unlicensed staff like UAPs or LPNs.
- Type of mistake:

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- Usually a careless mistake, due to **inattention**, forgetfulness, or failure to act.

- Is the patient harmed?
  - Yes, negligence results in harm or potential harm.
- Example:
  - A nurse delays responding to the patient's call light.
  - The patient tries to get up alone and falls.
    - **This is negligence because the nurse failed to respond in a timely manner.**
  - A nurse forgets to administer a patient's prescribed medication, leading to adverse effects.
  - The nurse did not use a sterile technique prior to inserting a folly Catheter.
- "The nurse failed to monitor the client's respiratory status post-op due to high patient load, and the client experienced respiratory arrest."
  - **Monitoring and observing vital changes** in a patient's health may be overlooked due to time restrictions, staffing shortages, or more critical matters demanding attention. A patient's health may deteriorate, or complications can result due to **improper monitoring resulting in negligence. A slow response to an alert** initiated by a patient can lead to negligence when this **delay** results in injury or harm, such as a patient falling.

➢ **3-Malpractice (fetal errors):**

- **Professional misconduct**, lack of skill, or failure to follow standard practice by a licensed healthcare provider (like an RN), which **causes**

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harm to the patient. It is considered a **serious form of negligence**. **Malpractice**

- Who can commit it?
  - A licensed healthcare professional, like an RN or doctor.
- Type of mistake:
  - A serious professional error or violation of standard medical practice.
- Is the patient harmed?
  - Yes, malpractice also results in harm or injury.
- Example:
  - An RN gives the wrong medication dose without checking the label, and the patient is seriously harmed. This is malpractice because a licensed nurse made a dangerous mistake that should have been avoided.
- RN fails to check the medication dose on a vial → gives the wrong dose → patient is harmed
  - ✅ This is **malpractice**.
- Nurse gives IV push potassium without dilution → known to be dangerous
  - ✅ **Malpractice**
- Blood transfusion is given without matching the blood type → patient reaction
  - ✅ **Malpractice**

➢ **4-Autonomy:**

- Refers to the patient's **right to make their own healthcare** decisions **without coercion.**

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- The nurse must respect the patient's informed choices, as long as the patient is **mentally competent** and understands the consequences.
- Example:
  - A patient refuses chemotherapy for cancer. Even though the treatment could help, the **nurse respects the patient's decision** and provides support.
    - This shows **respect for autonomy**

➢ **5-Beneficence:**

- **Beneficence** means the nurse should always **do good** and act in the **best interest of the patient** promoting health, preventing harm, and helping the patient heal.
- Focus:
  - Taking **positive action** to help the patient not just avoiding harm but actually doing **what benefits them**.

- Example:
  - A nurse **ensures that a patient receives** all necessary medications and treatments to improve their health.

➢ **6-Nonmaleficence:**

- The principle of "**do no harm."** Healthcare professionals must avoid causing harm to patients.
- If a question involves **preventing harm, questioning unsafe orders, checking for allergies, or avoiding risky interventions**, that relates to **nonmaleficence**.

◊ Example:

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- A **nurse checks the patient's chart** before administering medication to ensure there are no allergic reactions.

➢ **7-Justice:**

- The principle of fairness, ensuring that all patients receive equal care and treatment regardless of their background.
- Example:
- A nurse provides the same standard of care to all patients, regardless of their socioeconomic status.

➢ **8-Advocacy:**

- **Advocacy** means the nurse acts as a **protector and voice** for the client's **rights, health, and safety**.
- This includes **speaking up, questioning unsafe actions**, and ensuring the client gets the right care.

◊ Key idea:

- Even if it means questioning a doctor's order or contacting another healthcare provider, the nurse must act to **defend the patient's best interest**.

◊ NCLEX Tip:

- If the nurse takes **proactive steps** to:
  - Stop a potential error,
  - Escalate care,
  - Stand up for the patient's rights or safety

➢ **9-Confeinailty:**

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- **Confidentiality** means the nurse is ethically and legally obligated to protect the patient's **private health information (PHI)** and not share it with anyone who isn't directly involved in the patient's care.

◊ Purpose:

  - To maintain trust, **protect the patient's dignity and privacy**, and comply with laws like HIPAA.

➢ **10-Informed Consent**:

- **The process** by which a patient is given all necessary information about a procedure or treatment, allowing them to make an educated decision.
- Example:
  - Before surgery, a nurse ensures the patient understands the risks and benefits of the procedure and consents voluntarily.

➢ **11-Fidelity**:

- **Refers to being loyal**, faithful, and keeping promises or commitments. In the context of nursing.
- It means that **healthcare providers** must be honest, trustworthy, and adhere to the commitments made to patients, colleagues, and the healthcare system.
- Example:
  - **A nurse promises** a patient that they will check on them regularly. If the nurse is unable to do so for any reason, they must communicate this to the patient and ensure that someone else provides the necessary care.

◊ NCLEX Tip When the scenario involves:

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- Keeping a **promise to a patient**
- **Following through** with care
- **Being dependable**
  - So, Choose the option that reflects **fidelity**.

➢ Veracity:

- **Veracity** means **telling the truth**. In nursing, it's the ethical duty to be **honest with patients**, even when the truth is difficult to hear.

◊ Purpose:

- To build **trust**, promote **informed decision-making**, and show **respect** for the patient's right to know.
- A patient asks, "Do I have cancer?"
- The nurse knows the diagnosis is positive. Instead of avoiding the question or lying, the nurse responds truthfully in a **compassionate and professional** way.
- This is **veracity** being honest while still showing empathy.
- Nurses are expected to communicate openly and truthfully, even when **the information is difficult to hear.**

➢ Accountability

- Accountability in nursing refers to the **responsibility that nurses** have for their **actions, decisions, and the outcomes** of the care they provide.
- Nurses are held responsible for the care they deliver, the standards they uphold, and the decisions they make in patient care.

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◊ EXAMPLE:

- Responsibility for Care:
- A nurse must ensure that every action taken such as administering medications, performing procedures, or making clinical decisions is safe, appropriate, and aligns with nursing standards.
- If an error happens, the nurse must **take responsibility** and act to correct it.
- **Reporting and Documentation:**
- A nurse must **accurately document** patient assessments, interventions, and changes in condition
- Failing to document properly, or hiding an error, is a **breach of accountability**.

◊ NCLEX Tip:

- If a question asks what the nurse should do after a mistake or critical change, the correct answer will likely involve:
- **Taking responsibility**
- **Reporting honestly**
- **Following proper procedure.**

Physical and verbal abuse.

➢ **Legal Torts in Nursing:**

➢ **Assault:**

- Threat of harm there is **No** actual Physical harm it just **the threat**.
- Scenario:

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◊ **A nurse is frustrated** with a patient who is refusing to take their medication. The nurse says, "If you don't take this medication, I will restrain you and make you take it." The nurse does not physically touch the patient but creates fear that force will be used.

- **Violation:** This is assault, as the nurse is threatening to use force, and the patient feels fearful of harm.
- **Correct Practice:** The nurse should communicate calmly with the patient, explaining the medication's importance and trying to gain consent in a respectful manner without using threats.

➢ **Battery:**

- You **physically** did something to the client without their **informed consent.**
- **When a nurse intentionally** touches a patient without their consent or performs a procedure that goes beyond the scope of the patient's consent.
- Scenario:
  - **A nurse attempts to administer** an injection to a patient who is refusing the procedure. The nurse forces the needle into the patient's arm without consent, even after the patient verbally protests.
  - **Violation:** This is battery, as the nurse physically touches the patient without permission, and the patient has not consented to the action.
  - **Correct Practice:** The nurse should **always seek** informed consent from the patient before proceeding with any procedure.

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If the patient refuses, the nurse must respect their autonomy and seek alternatives or involve other healthcare professionals.

- Performing a procedure on a patient without obtaining informed consent
  - **Battery in nursing is the actual**, willful touching of a patient without consent that may or may not result in harm.
    - Any type of touching that a patient considers harmful, or offensive can be considered as battery, even **actions** can consider **Battery** even if no **physical harm** as give **OPIOID** and tell the client this **saline.** Even though the patient was **not physically harmed,** this is still battery because the touching (injection) happened without informed consent.

➢ **False Imprisonment:**

- You are doing something **against their will**.
- Using **physical restraints**, seclusion, **Chemical restrains** like a **sedating drug** but this only **for Stable Clients it** does not include Client who are **Unstable on Psychiatric** unit.
- Scenario:
- **A nurse applies physical restraints** to a patient who is agitated but does not have a physician's order to do so or does not have clear documentation of the patient's safety needs.
- **Violation:**
  - This is false imprisonment if the restraints are used without proper medical justification, consent, or authorization.

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Restraining a patient without **following legal protocols is unlawful.**

- **Correct Practice:**
  - Physical restraints should only be used if necessary to protect the patient or others, and they should be applied according to hospital policies and with proper orders from a physician. The nurse must document the justification for restraints and ensure they are used safely and ethically.

➢ **Defamation of Character:**

- This includes making rude Comments, insulting remarks that harm a **client's reputation** and this is included **written and spoken.** It could also be **for Coworkers.**

◊ There are two types of defamation of Character:

◊ **Libel:**

- This is written defamation of Character.
- What about reading a letter your Coworker **wrote** about a nurse having an alleged relationship with a client on the unit:
- Libel

◊ **Slander:**

- Spoken, defamation character.

◊ **Examples:**

◊ The acute care clinic nurse administers **prescribed narcotics to a client** with renal colic and no designated driver, ensuring that the client has a designated driver. The client is subsequently involved in

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a motor vehicle accident, causing harm to self and others. Which ethical principle did the nurse violate?

- ☐ 1. Autonomy.
- ☐ 2. Nonmaleficence.
- ☐ 3. Paternalism.
- ☐ Veracity.

◊ The nurse prepares to lead an in-service on legal issues related to nursing. Which legal items are followed by an appropriate example? Select all that apply.

- Assault - Threatening to administer a benzodiazepine if the client does not comply.
- Battery - Misinforming a client that a painful injection will not create discomfort.
- False imprisonment - Slotting a competent client's clothes to prevent the client from leaving prior to prescribed surgery.
- Informed consent - Calling the parent of an emancipated minor for approval prior to providing care.
- Invasion of privacy - Posting a medical update on the social media page of a client who is a friend.

- The nurse has attended a staff education program about ethical practices in nursing. Which of the following statements by the nurse would indicate a correct understanding of the program? Select all that apply.
- ☐ 1. Accountability is notifying the health care provider after making a medication error.

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- ☐ 2. Autonomy is to inform the client of the care decisions the family has made for the client.
- ☐ 3. Confidentiality is respecting a client's request to keep suicidal ideation a secret from other members of the health care team.
- ☐ 4. Fidelity is returning to the client's room with pain medication at the time that was promised to the client.
- ☐ 5. Nonmaleficence is reporting suspected elder abuse of a client with Alzheimer disease.

- The nurse is talking with the parent of an adolescent client who arrived at the emergency department after discovering that the client was involved in a motor vehicle collision. The parents ask about the client's condition. The client is unconscious and is currently receiving CPR. Which of the following responses would be appropriate for the nurse to make?
- ☐ 1. "I do not have any information about your child's condition, but you can speak with the HCP."
- ☐ 2. "Your child is critically ill, and we are currently caring for your child's needs."
- ☐ 3. "The health care team is currently attempting to revive your child after your child's heart stopped."
- ☐ 4. "Only the health care provider is allowed to discuss your child's condition with you."

➢ **Informed Consent:**

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- **A process of communication** between patients and health care **providers that often leads** to agreement or permission for care, treatment, or services.
- Every patient has the right **to get information, and Consent** is deciding to do something a **voluntary decision.**

◊ Terms of safety: -

- Informed Consent is just required **before any invasive procedure** and **even any Surgery**.
- Informed Consent Confirm clients, **voluntary decision** to both the **benefits** as well as the **risks.**
- For non-English Speakers **they cannot Consent** without **medical translator** "It should be **medical translator»** not a family member.
- Consent must be given by a **competent adult**.

◊ Competent in NCLEX include:

- Client above 18 years
- Parents or **Guardians if less than 18 years**.
- Less than 18 years and pregnant or Military.

➢ **Medical interpreter:**

- **A certified medical interpreter** is a **bilingual or multilingual person** who is responsible for providing **real-time translations to patients and their family members**.
- Their work helps **bridge the communication gap** between physicians and patients who do not share a common language
- Can a nurse Fluent in Spanish, translate for a native Spanish Speaker to obtain Consent?
- Only medical interpreters who know medical terminology.

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◊ Nurses Role For informed consent:

- **Witness** the consent. Not to obtain
- **Document both** the date and the time the signature was obtained.
- **Assess and verify that the** Client is Competent and **voluntarily sign**.
- Stay away from educating about the **Procedure.**
- **Surgery** the one will explain the Procedure.

◊ **Examples:**

- The Client is having a **gall bladder removed** and wants to talk about **diet** after the surrey.
- This nurses roles because we are not talking specific about the Surges.
- IF the Client wants to know about **the surgery risks** in this case this surgeon and providers roles.
- What if a client States, I've changed my mind, I don't want to have Surgery. How should the nurse respond in this case?
- I will notify your provider or your surgeon about your decision.
- Do not educate.
- What if the Client has a question **about exercise after Surgery** after a procedure?
- Nurses can educate about Post of Care
- How about a Client going for a Partial hysterectomy and want to know if they Can Still have children with one ovary left.
- Nurses can't provide Specifics.

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- How about a Client who's anxious about an upcoming Surgery wants to cancel it due to all the risks?
- The nurse cannot be educated.

➢ What is an Ethical Dilemma?

- An **ethical dilemma** is a situation where the nurse must choose between **two "right" actions**, but choosing one means **violating the other**.
- Example:
    - A terminally ill patient has a DNR (Do Not Resuscitate), but the family insists on doing CPR.

⇨ What is the Nurse's Role?

- The nurse should **NOT**:
    - Choose for the family.
    - Judge the family's emotions.
    - Force a decision

⇨ **The nurse SHOULD:**

- Listen actively
- Acknowledge emotions
- Support the family
- Follow legal documents (like a living will or DNR)
- Notify the healthcare provider if needed

◊ Sample Question (NCLEX Style):

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- A terminally ill client has a living will indicating no life-sustaining measures. The client's family insists on starting full resuscitation if the client's condition worsens. **What is the nurse's best response?**
- A. Respect the family's wishes and begin CPR if needed
- B. Inform the physician to cancel the living will
- C. Explain the legal authority of the living will and notify the healthcare provider
- D. Tell the family their decision is unethical and cannot be accepted

➢ **Advance care planning:**

- Advance care planning involves legal documents that outline a client's wishes regarding medical treatment in case they are unable to communicate.

◊ The goal of that:

  - To give the clients the care they want and allow clients to make their future care but **be focused** here **ONLY ON CASE (End of life / Dementia/ Brain injury).**
  - In case we have clients **incompetent** and no **advance directive** or **family member present** so we will **deliver life sustained care**.

◊ The nursing role:

- These documents must be **uploaded into the client's electronic health record (EHR)** so the healthcare team can follow them.
- They become **active** if the client is **unconscious or unable to make decisions**.

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- They are **deactivated** once the client **regains consciousness** and can make their own decisions.

◊ **Types of advanced directive:**

- **FIRST living will,** which means the client he is the one will decide what he wants in the end of his life does **not involve anyone.**
- **SECOND, Durable power of attorney (POA) for health care= health care proxy, medical power of attorney = health care agent= surrogate all** these means who the client appointed to make his own decision.

◊ **Code Status Options in Advance Directives (Living Will):**

◊ **Full Code**:

- are fully resuscitative measures, mean we will do everything to save this client's life.

◊ Includes:

  - CPR (Cardiopulmonary resuscitation)
  - Defibrillation (shocking)
  - Intubation and mechanical ventilation
  - IV medications, fluids, etc.
  - Do everything possible to save the client's life

⇨ **A Chemical Code**:

- is Medications only so **no shocking No CPR**, **no respiratory help.**
- Medications only:
  - No chest compressions
  - No defibrillation

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- No intubation or mechanical ventilation

⇨ **DNI:**

- Means Do Not intubate.
  - No placement of a breathing tube (no intubation)
  - No mechanical ventilation
  - May still receive medications and non-invasive treatments
  - Can still receive CPR (unless otherwise specified)

⇨ **DNR**:

- Means Do Not Resuscitate (No CPR No resuscitation).
- No CPR
- No defibrillation
- No intubation
- Comfort care only (or whatever is defined in the patient's wishes).

➢ **Hierarchy of medical decisions makers for the patient:**

- In this case the client is unable to make his own decision: **(End of life, Dementia, Brain injury).**
- First Line: **Living will** which means what the client wants.
- Second line: Medical power of attorney **(MPOA**) which mean who the client **appointed** to make his own decision.
- Third LINE: Spouse or partner
- Fourth LINE: Adult child
- Fifth: parent
- Six: adult sibling.

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- The nurse is talking with the spouse and sibling of a client with a terminal illness who is unresponsive and is experiencing respiratory distress. The sibling is the agent holding the client's power of attorney (POA) for health care. Which of the following actions should the nurse take?
- ☐ 1. Ask the client's sibling if the client has a living will.
- ☐ 2. Ask the spouse about the client's preferences for medical care.
- ☐ 3. Inform the client's spouse that the client requires emergency intubation.
- ☐ 4. Obtain guidance from the client's sibling regarding medical care decisions.

◊ **Focus here,**

- **We have two different types of** medical power of attorney:
- **One** Medical that's what we are talking about**.**
- **Second** financial this cannot take decision maker for medical So always we must confirm if the medical power of attorney is Medical or FINANCIAL.

◊ **Examples: -**

- Can a Client with DNAR get oxygen via **nasal cannula For a Comfort measure?**

  If it's clearly stated **comfort measures** only, not resuscitative measures. So yes.

- In case you entered a room and found the client unconscious, and you started CPR then you realized the client in his medical record is DNAR:

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- So, you must stop everything.
- Client Came to ER unconscious or has a brain bleed and unable to speak and we can't find **advanced directives**. What do you do?
- Full treating Full life saving.

➢ **Refusal of Care:**

- **Refusal of Care** occurs when a patient chooses to **decline medical treatment** or **leave the healthcare facility despite the provider's recommendation**.
- This is commonly known as:
  - **AMA** – Against Medical Advice
  - **DAMA** – Discharge Against Medical Advice (same concept, often used in hospital settings)

◊ Key Considerations for AMA/DAMA:

  - Patient Autonomy – Patients have the right to refuse treatment, even if it may negatively impact their health.
  - Informed Decision-Making – Healthcare providers should ensure the patient understands the risks and consequences of leaving AMA.
  - Documentation – It is crucial to document the patient's decision, their understanding of the risks, and any efforts made to persuade them to stay.
  - Follow-Up Care – If possible, provide resources or guidance for continued care outside the hospital.
  - Competent adults can refuse treatment even if the partner does not agree, even Child, Spouse, and Mother.

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- When a client leaves against medical advice it is essential for the nurse to immediately inform the HCP to ensure the risks of leaving the hospital.

◊ **Competent adults** can leave hospital and sign AMA:

- Conscious
- Oriented (not confused or delusional)
- Able to understand the risks
- Legal adult (≥18 years old)
- Or <18 but legally emancipated (e.g., pregnant, military, married, living independently)
- Example: A 19-year-old client who is alert and oriented refuses surgery → Can sign AMA
- Example: A 17-year-old pregnant girl refusing care → Can legally make her own decisions

◊ Incompetent and cannot leave AMA:

- **Suicidal ideation**
  - Risk to self = can't leave
- **Altered mental status**
  - Confusion
  - Delirium
  - Agitation or restlessness
  - Disorientation
  - **Under the influence** of drugs or alcohol (chemical impairment) Judgment is impaired
- **Severe psychiatric condition**
  - Mania
  - Psychosis

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- Hallucinations
- Not eating or drinking (e.g., manic for 5 days, no intake = not safe)
- **Parents refusing necessary treatment for a minor** If a child is in danger, **hospital can override parental refusal**

◊ In case can make **their own decision and fully conscious and awareness and want to leave AMA?**

- So, the rule for the nurse to educate him about the risks of leaving the hospital.
- Notify the Provider (HCP)
- Remove any IV Catheters and tubes.
- Sign AMA Consent.
- Follow principles **do not inform security.**

➢ **Mandatory Reporting (obligated).**

- Mandatory reporting refers to the legal obligation of healthcare professionals, including nurses, to report certain conditions or incidents to the appropriate authorities. This duty applies regardless of the client's or family's consent when safety is a concern.

◊ **1- Suspected Child abuse:**

- When a nurse suspects that a child is being abused or neglected based on physical signs, inconsistent explanations, or behavioral cues they are legally required to file a report with Child Protective Services (CPS).
- Professional Nurse Response to the Caregiver:

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- "I understand this may be upsetting, but as healthcare providers, we are legally required to report certain injuries to Child Protective Services to ensure the child's safety and wellbeing. This process is not about blame it's about following policy and protecting those who may be at risk.

◊ Should follow these:

- Assess First, then intervention.
- If abuse is Suspected You must legally report.
- Protect the Client from that immediate harm.
- Separately interview the CHILD.
- Collect and Prepare evidence.
- Create a Safety Plan and Provide information like shelters or even houses.

⇨ Nursing Responsibilities:

- **Remain calm and neutral** – do not accuse or confront the caregiver.
- **Ensure the child's immediate safety.**
- **Notify the appropriate authority (CPS)** according to facility protocol.
- **Document objectively** – describe observed injuries, statements made, and actions taken.
- **Do not attempt to investigate** or confirm the cause of injury yourself.

➢ **Mandatory Reporting (Civil and Legal Reporting Requirements):**

- There are specific situations where nurses are legally required to report to civil authorities or designated agencies, regardless of patient or colleague consent.

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◊ Nurses MUST report the following:

- **Abandonment**
  - When a nurse **walks off duty** in the middle of a shift without proper handoff or notice
  - Report to **nursing supervisor** and possibly **state board of nursing**
- **Suspected Child or Elder Abuse**
  - Mandatory reporting to **Child Protective Services (CPS)** or **Adult Protective Services (APS)**
- **Unnatural or Suspicious Deaths**
  - Includes **trauma**, **suicide**, **homicide**, or any **unexpected death**
  - Report to **medical examiner** or **coroner**
- **Impaired Healthcare Workers**
  - Report any healthcare worker (nurse, doctor, etc.) who is **under the influence** of drugs or alcohol while working
  - Protects **patient safety** and is often reported to **supervisor** or **board of nursing**

◊ What Nurses Should NOT Report (HIPAA Protected):

- **Do NOT report to a client's employer** if they were in a **car crash while intoxicated**
  - This is **protected health information (PHI)**
  - Violates **HIPAA**
- **Do NOT inform a spouse** that the client has a **sexually transmitted disease:**

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- Even if it's a **reportable disease**, the **public health department** is notified **not family members**

➢ **Incident reports:**

- **Used in a health facility to document** events that unanticipated actual or potential risk to **health** or **safety** of a **client**, **visitor, and employer.**

◊ When to File an Incident Report (3 Common Cases):

- **1. Assault and Battery Injuries**
  - Includes any **physical, verbal, or sexual assault** that occurs **within the healthcare setting**
  - Can involve clients, visitors, or staff
- **2. Treatment-Related Incidents**
  - **Inadequate or delayed diagnosis or treatment**
  - **Client falls** – with or without injury
  - **Visitor or staff falls**
- **3. Impaired Staff Members**
  - If a nurse **arrives to work intoxicated** (alcohol, drugs)
  - **Do NOT confront them directly** (e.g., don't say "you're unfit")
  - **Complete an incident report** and **report to supervisor**

◊ Just focus here:

- **You don't need to make** a report for a client determined **brain dead** just document **in medical record.**

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- **Even absent or come late staff** should be documented in employee record.

◊ **Patient Safety Events (Sentinel Events, Near Miss, and Incident Reports)**

- **First, Sentinel event**, is a serious error causing irreversible harm or death.

◊ Sentinel Events:

- A sentinel event is a serious and unexpected occurrence that results in: Death, Severe physical or psychological harm, Permanent loss of function.
- These events require immediate investigation and respons

◊ Examples include:

- Wrong-site surgery (operating on the wrong body part)
- Medication errors leading to death
- Suicide of a patient within a healthcare facility
- Blood transfusion errors with incompatible blood
- Infant abduction or discharge to the wrong family

◊ Response to Sentinel Events:

- Immediate intervention to prevent further harm
- Root cause analysis (RCA) to identify the underlying cause
- Implementation of corrective actions to prevent recurrence
- Reporting to regulatory bodies (e.g., The Joint Commission in the U.S.)

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➢ 2. Near-Miss Events:

- A near-miss event is an incident that could have caused harm but did not, either by chance or through timely intervention. These events serve as warning signs that could lead to sentinel events if not addressed.

◊ Examples of Near-Miss Events:

- A nurse catches a medication error before administering the wrong drug.
- A surgeon notices a wrong-patient chart before starting a procedure.
- A patient almost falls, but a staff member intervenes just in time.

◊ NOTE:

- Both sentinel events and near-miss events require proper reporting and action to ensure patient safety and prevent future incidents.

➢ What about professional boundaries?

- Professional boundaries are the **limits** that protect the **space between the nurse's power** and the **patient's vulnerability**. They help maintain a **safe, respectful, and therapeutic nurse-client relationship**.
- You must set a limit to maintain a therapeutic professional relationship between the nurse and client, so there are:
  - N**o accepting of gift**.
  - **NO staying with a client after hours' work**, **invert in a client company.**

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- But he can send a sympathy card family after client death.

⇨ Why Are Boundaries Important?

- Nurses have more knowledge and authority, so the patient is in a vulnerable position.
- Boundaries prevent abuse of power, emotional entanglement, and conflicts of interest.
- They ensure the nurse focuses on the patient's well-being, not personal needs.

➢ **Good Samaritan law:**

- a legal protection for nurses and anyone else who gives **emergency help** outside the hospital like in the street, after an accident, or during a sudden health event.
- It's meant to encourage people to help **without fear of being sued**, as long as they act **in good faith** and **within their level of training**.

◊ What are the conditions for protection?

- The nurse must **not be on duty** or assigned to care for the person.
- The nurse must provide help **voluntarily** not because it's their job.
- The nurse must **not accept any payment** or gift for the help.
- The nurse must give care that is **reasonable and competent** not negligent.
- Once **emergency services or proper caregivers arrive**, the nurse should **transfer care** and step back.

◊ Important clarifications:

- Even if the **victim dies**, the nurse is **not legally responsible** as long as care was done properly.

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- Knowing the person (friend, neighbor, etc.) **does not change the law's protection**.
- The nurse is **not legally forced** to stop, but there is often an **ethical duty** to help when possible.

◊ NCLEX Tip:

- If you see a question where a nurse stops to help at a car accident while off duty and someone sues the answer is usually that the **nurse is protected by the Good Samaritan Law**, **as long as the care was reasonable and unpaid**.

- Following a **motor vehicle crash,** the nurse stops to help a victim who has a laceration with spurting blood. The nurse giving reasonable assistance could be held liable under Good Samaritan laws in which situations? Select all that apply.
- ☐ 1. The nurse accepts money from the victim.
- ☐ 2. The nurse does not accompany the victim on the ambulance.
- ☐ 3. The nurse does not apply direct pressure to the artery.
- ☐ 4. The nurse knows the victim from college.
- ☐ 5. The victim dies after reaching the hospital.
- ANALYSIS:
- 1. The nurse accepts money from the victim – Yes, if the nurse accepts money, this may negate the protection of the Good Samaritan laws because the nurse would no longer be acting as a volunteer, and the law protects only those who help without compensation.

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Classification: Internal Use

- 2. The nurse does not accompany the victim on the ambulance – No, the nurse is not required to accompany the victim on the ambulance for Good Samaritan protection. This does not constitute liability.
- 3. The nurse does not apply direct pressure to the artery – Yes, if the nurse fails to apply direct pressure to control the spurting blood, this could be considered negligence. Good Samaritan laws protect reasonable assistance, but failure to act in a reasonably expected manner could lead to liability.
- 4. The nurse knows the victim from college – No, knowing the victim does not change the nurse's liability under Good Samaritan laws. The laws focus on the actions taken in emergency situations, not on personal relationships.
- 5. The victim dies after reaching the hospital – No, the nurse cannot be held liable simply because the victim dies after reaching the hospital, especially if the nurse acted reasonably in providing emergency care.

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6/Management Concepts

➢ **Management concepts**:

- In the context of NCLEX (National Council Licensure Examination) for nursing, **management concepts** are crucial because they **test the ability of nursing candidates** to make decisions that **affect patient care**, **nurse team leadership**, and healthcare **resource allocation**.
- Management concepts in NCLEX:
  - focus on leadership, delegation, prioritization, and decision-making in clinical settings.

◊ **Management concepts related to Clostridium difficile (C. diff) in the NCLEX context:**

⇨ Infection Control and Isolation Precautions:

- A **bacterium t**hat causes an infection of **the colon** (the longest part of the **large intestine) s**ymptoms can range from **diarrhea** to **life-threatening damage** to the colon.

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- The bacterium is often **called C. difficile.**
    - **C. diff** is highly contagious and is primarily transmitted through the **fecal-oral route**.
    - Proper infection control measures must be followed to prevent the spread of other **patients and healthcare workers.**

◊ Example:

- A patient with **C. diff** is under isolation precautions. The **nurse did not properly wash her hands** after cleaning the patient. Then, she went to assist another patient with feeding that second patient may become **infected**, because **C. diff can spread via the fecal-oral route** if hands are not properly washed with soap and water.

◊ CAUSES:

- **Antibiotic Use**. **(** It often occurs after the use of strong antibiotics because they kill the good bacteria) . That means:
    - Using strong antibiotics can kill the beneficial bacteria that naturally live in the intestines, which allows harmful bacteria like *C. diff* to grow and cause infection.
- Healthcare Settings (Nosocomial Infection).
- Advanced Age.
- Use of Proton Pump Inhibitors (PPIs).
- Inadequate Hand Hygiene or Infection Control Practices

◊ Contact precautions are required for patients with C. diff, which includes:

- **Wearing gloves** and gowns when entering the room.
- **Proper hand hygiene**, which must include soap and water (alcohol-based hand sanitizers do not kill C. diff spores effectively).
- **Ensuring proper cleaning** and disinfection of surfaces with bleach-based products.

◊ Medication Management:

- **The treatment for C. diff involves** the use of antibiotics to target the infection. The first-line antibiotics typically used include:
    - **Vancomycin (oral form)** or Fidaxomicin for mild to moderate cases.

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- Metronidazole for initial mild cases (though this is now less commonly used due to resistance).

⇨ Complications of C. difficile infection include:

- **Loss of fluids,** called **dehydration.** Severe diarrhea can lead to a serious loss of fluids and minerals called electrolytes. This makes it hard for the body to work as it should. It can cause blood pressure to drop so low as to be dangerous.
- **Kidney failure.** In some cases, dehydration can occur so quickly that the kidneys stop working, called kidney failure.
- Toxic megacolon.

⇨ Measures to prevent C. difficile include:

- **Handwashing.** Health care workers should make sure their hands are clean before and after treating each person in their care. For a C. difficile outbreak, using soap and warm water is better for cleaning hands.
- **NOTE:**
  - **Alcohol-based** hand sanitizers don't destroy C. difficile spores.

➢ Adverse event:

- **Adverse events** are unexpected or harmful incidents related to patient care, often preventable, and may cause injury or complications.
- These are high-yield topics in NCLEX and patient safety education.

⇨ Types of Adverse Events:

◊ Medication Errors

- Examples: Incorrect dosage, wrong medication, or administration via the wrong route.

◊ Infections (Healthcare-Associated Infections):

- **Examples:** Clostridium difficile (C. diff), Urinary Tract Infections (UTIs) from catheter use, or surgical site infections

◊ Falls and Injury:

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- **Examples:** A patient falls due to improper assistance, slippery floors, or improper use of restraints

◊ Surgical Errors:

- **Examples:** Wrong-site surgery or **retained foreign objects**, or anesthesia complications.

◊ Blood Transfusion Reactions:

- **Examples:** Hemolytic reactions, allergic reactions, or febrile reactions due to mismatched blood or improper administration.

◊ Pressure Ulcers:

- **Examples:** Skin breakdown due to prolonged pressure, particularly in immobile patients.

⇨ **An incident report:**

- **a formal documentation** of an event or situation that results in, or has the potential to result in, harm to the patient, staff, or others.
- **It is a tool** used to capture information **about an adverse event** or any situation that **deviates from standard care protocols**, regardless of whether it led to harm.
- **Incident reports** are crucial for quality improvement, risk management, and preventing future occurrence

⇨ **Note:**

- **Hospitals have Policies** that allow medications to be given with a range (30-60) before that it doesn't need adverse event.

➢ **Sexual harassment (Repeat unwanted sexual):**

- Sexual harassment involves **unwanted sexual behavior** (verbal, physical, visual) that is **explicit or implicit**, and **negatively affects the employee's ability to work**.
- May come from **colleagues, supervisors, patients, or visitors**.

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- It creates a **hostile, intimidating, or offensive work environment**.

◊ Examples of Sexual Harassment:

- Inappropriate comments or jokes
- Unwelcome touching or gestures
- Displaying sexually suggestive materials

◊ Nurse's Responsibilities (According to NCLEX Standards):

- **1. Recognize and Report**
  - The nurse must **recognize harassment behavior** immediately.
- **Report the incident** to:
  - Supervisor
  - Human Resources (HR)
  - Safety or compliance officer
- **Document everything**:
  - Date & time
  - Place
  - What happened (objective language)
  - Names of witnesses (if any)
- **2. Follow Institutional Policies:**
  - Nurses must be aware of the **facility's sexual harassment policies**.
  - Must follow the **correct reporting chain**.
  - Never ignore or delay reporting such incidents.

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- **3. Prevention & Education Healthcare facilities are responsible for:**
  - **Conducting mandatory training**.
  - Promoting **zero-tolerance environments**.
  - Teaching staff about laws, policies, and reporting procedures.
- **4. Maintain Professional Boundaries:**
  - Nurses must maintain:
  - **Clear, respectful, and professional communication**.
  - No personal or flirtatious behavior with patients, families, or coworkers.
  - Be a **role model** for ethical, respectful interaction.

◊ NCLEX Relevance:

- NCLEX may include **scenario-based questions** such as:
- "A nurse feels uncomfortable after a physician makes repeated inappropriate comments. What should the nurse do next?"
- Correct answer: **Document and report the incident according to facility policy.**

◊ Important Tip for NCLEX:

- **Ignoring, joking, or confronting the harasser informally is NOT the correct choice** in most scenarios.
- The correct answer often includes:
  - Reporting
  - Documentation
  - Following protocol

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➢ Effective interdisciplinary communication:

- **Interdisciplinary communication** refers to the exchange of information, ideas, and concerns among healthcare professionals from different fields (nurses, doctors, pharmacists, social workers, physical therapists, etc.) who **collaborate to provide safe** and **effective care.**

◊ Importance:

- Ensures **patient safety**
- Reduces **medical errors**
- Promotes **team-based care**
- Enhances **decision-making**
- Frequently tested in **NCLEX scenario questions.**

◊ Key Elements of Effective Interdisciplinary Communication:

- **1. Clear and Concise Information:**
  - Be **direct** and **to the point**
  - Avoid **medical jargon** that others may not understand
  - Prioritize **urgent and relevant details**
- ✅ **2. Use of SBAR Tool:**
  - A structured method for communication, especially in critical or urgent situations.

⇨ **SBAR:**

- A **verbal** or **written communication tool** that helps **provide essential concise information**, usually during crucial situations.

⇨ S …. Situation:

- This is (name of nurse) Work (name of Unit)
- Calling about client (name)
- Calling To report….

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⇨ B…. Background

- Client name was admitted with diagnosis…
- On date.
- Client did Procedure if he did.
- client name Condition Change

⇨ **A...** Assessment

- Current vital signs
- I don't know what Causing This Change is.
- But client name Condition is declined.

⇨ R… recommendation (Request)

- I need you to…
- Come and See
- How would you like me To Proceed?

⇨ Handoff Communication (Shift Report Should Include):

- **Include:**
  - Patient's identifying information (name, room number)
  - Ongoing or pending tasks (e.g., medication times, dressing change delays)
  - Precise and relevant data (drug doses, vital signs, outcomes)
  - Multidisciplinary plans (e.g., radiology consult, family meetings, physiotherapy)
- **Should Not Include:**
  - Irrelevant personal information
  - Subjective comments or gossip

➢ **What is Triage?**

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- **Triage is the process of prioritizing** care for patients based on the severity of their condition.
- **In disaster situations,** triage helps healthcare providers determine which patients need immediate attention, which can wait, and which may not survive even with treatment.

⇨ Triage in Disaster situations:

- Involves quickly assessing the severity of injuries and categorizing them based on **urgency.**
- **Finding** a safe place to move victims.
- **Transporting** the most critical patients away from the scene.

⇨ Colour code tag system**:**

⇨ **RED (immediate) (emergent)**

- This seen first has **highest priority.**
- Life Threat Injury with high **probability for survival** if get them treatment.
- Examples:
- Shock- Compromised-airway-unstable-chest trauma, sever spinal cord injury, bleeding, burns on the body.

⇨ **Yellow (Urgent) (delay):**

- Second highest priority
- Serious injury requires treatments (30 min-2hrs)
- Examples:
- open Fracture, major bone fracture, or Large wound.

⇨ **Green (Non urgent)**

- Require Treatment but can wait 2h or more.
- Examples:
- Infection, burns Minor, Closed Fraction.

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⇨ **Black (Expectant) (Dead no care needed)**

- Severely injured and not expected to survive.
- Examples:
- **Injury deadly**, absence of breathing, circulation, Pulseless /sever neural logical trauma, Full Thickness burns >60%.
- Client with fixed and dilated pupils and no spontaneous respiratory.

➢ **Subdural hematoma:**

- **A subdural hematoma (SDH)** is a collection of blood between the **dura mater** (the outer protective layer of the brain) and the **arachnoid membrane** (the middle layer).
    - It typically occurs as a result of **head trauma** and can lead to brain compression, which can be life-threatening if not treated promptly.

⇨ Causes of Subdural Hematoma:

- **Trauma to the head:** The most common cause is head injury, particularly those that involve **rapid deceleration or blunt force trauma**, such as falls, car accidents, or sports injuries.
- **Anticoagulant use:** Patients on anticoagulants (e.g., warfarin, aspirin) or those with bleeding disorders are at higher risk for bleeding, which may lead to subdural hematoma.
- **Aging:** Older adults have a higher risk because **their brain shrinks with age**, leaving more space between **the brain and the dura mater**, making it easier for blood to collect.
- **Alcohol abuse:** Chronic alcohol use can increase the risk of falls and also contribute to blood clotting problems, both of which make SDH more likely.
- **Shaken baby syndrome:** In infants and young children, shaken baby syndrome can cause **subdural hematoma.**

⇨ Management and Treatment:

◊ **Conservative Management non-Surgical Intervention (for small or asymptomatic SDH):**

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- If the subdural hematoma is small and **the patient is not showing significant symptoms**, treatment may include monitoring and serial imaging (CT or MRI) to check for changes.
- Close neurological monitoring is essential, especially for changes in consciousness or neurological function.

◊ Surgical Intervention:

- **Surgical evacuation of subdural hematoma** is often necessary to relieve pressure on the brain. When subdural hematoma leads to increased intracranial pressure (ICP), it can cause brain compression and a reduction in cerebral perfusion. This diminished blood flow to the brain can **result in ischemia** (lack of oxygen) and brain injury.

◊ ICP Management:

- For patients with elevated intracranial pressure (ICP), interventions may include the use of **osmotic diuretics (e.g., mannitol) or hyperventilation** to reduce brain swelling.

◊ Supportive Care:

- Pain management, anti-seizure medications, and neuroprotective care are part of managing the patient.

⇨ Increased ICP sign and symptoms include:

- **Changes in Level of Consciousness**, Headache, Nausea and Vomiting, Seizures, Changes in Speech or Behavior,
- **Cushing's Triad is** a late sign of increased ICP and is a medical emergency. It consists of:
- **Hypertension** (elevated blood pressure): Usually, systolic blood pressure increases significantly to improve cerebral perfusion pressure.
- **Bradycardia (slow heart rate):** As ICP increases, the body's response includes a slowing of the heart rate, often to compensate for the lack of cerebral blood flow.
- **Irregular respirations:** Respiratory patterns may become erratic, including Cheyne-Stokes (alternating periods of deep and shallow breathing) or apnea.

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➢ A mobile crisis team:

- **Mobile crisis teams** are critical in providing timely, effective mental health intervention **outside of traditional healthcare settings**.
- The team focuses on:
  - **De-escalation,** safety, and **connecting the individual** with necessary services.
- Nurses in these teams:
  - play a vital role in performing assessments, providing support, and ensuring patient safety.

⇨ When a Mobile Crisis Team is Needed:

- Suicidal ideation
- Acute psychiatric episodes.
- Substance abuse crises.
- When mental health issues lead to family conflicts, domestic violence, or severe relationship stress, a mobile crisis team can offer support

◊ Mobile Crisis Team Functions:

⇨ 1-Rapid Response:

- **Mobile crisis teams provide** immediate, on-site support for individuals experiencing a **mental health crisis** in the community. They can respond to homes, schools, public places, or healthcare settings.
- These teams are designed to intervene **before the crisis escalates,** potentially preventing hospital admissions or arrests.

⇨ 2-Interdisciplinary Team:

- The team typically includes professionals **such as:**
  - Mental Health Nurses
  - Licensed Social Workers

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- Psychologists or Psychiatrists
- Crisis Counselors

⇨ 3-Crisis De-escalation:

- **One of the primary goals** of the mobile crisis team is to de-escalate the situation through **therapeutic communication, active listening,** and non-judgmental support.
- The team may use strategies like **relaxation techniques, cognitive-**behavioral interventions, or supportive counseling.

⇨ 4-Linkage to Services:

- **After de-escalating the crisis**, the team may refer the individual to outpatient mental health services, community resources, or long-term psychiatric care.

⇨ 6-Prevention of Hospitalization:

- **One of the primary goals** of mobile crisis teams is to prevent unnecessary emergency room visits and hospitalizations by providing timely, effective care in the community.

➢ Case Manager (NCLEX – Leadership & Management):

- A **Case Manager** is a **licensed healthcare professional** (usually a nurse or social worker) who:
  - **Coordinates care**
  - **Connects patients** with services and providers
  - **Advocates** for the patient
  - Helps the patient **reach the best possible health outcome**

◊ Main Goals of a Case Manager:

- Ensure **safe, efficient, and effective** care

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- Help patients especially those with **chronic, complex, or long-term conditions**
- Reduce **hospital readmissions** and **healthcare costs**
- Support **discharge planning** and **home care referrals**

◊ Responsibilities of the Case Manager in the Hospital:

- **Assessment:**
  - Identify the patient's physical, emotional, and social needs
- **Coordination:**
  - Communicate with doctors, nurses, social workers, therapists
  - Schedule appointments or therapies
  - Coordinate treatment across departments
- **Referrals:**
  - Refer the patient to needed services like:
  - Physical therapy
  - Home healthcare
  - Support groups
  - Insurance resources
- **Discharge Planning:**
  - Plan for safe transition home or to another facility
  - Arrange home care or follow-up services
- **Monitor Standards:**
  - Make sure care follows **quality and safety standards**

◊ Important NCLEX Point:

- **A Case Manager does not need to visit the client daily.** Their job is **coordination**, not direct patient care.

◊ NCLEX Example:

- **Question:**

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- Which action is most appropriate for the case manager when planning discharge for a client with a new tracheostomy?
    - **Best Answer** Arrange for home health services and ensure the patient and family receive trach care education.

➢ Child Neglect:

- Child neglect happens when a caregiver **fails to provide** the **basic needs** of a child, **intentionally or through negligence**.
- This includes:
    - Adequate **nutrition**
    - Proper **hygiene**
    - Physical and emotional **security**
    - **Medical care**
    - **Education**
    - Safe **living conditions**
- It's considered a **form of abuse** and **must be reported** by the nurse (mandatory reporter).

◊ Supervisory Child Neglect:

- This means the child is **left without proper adult supervision**, which may put them at **risk of harm**.

◊ Examples:

- Leaving a **young child** alone at home
- Leaving a **newborn** in the care of a **young sibling**
- Letting a child **wander unsupervised** in unsafe environments (streets, parks, etc.)

◊ Nursing Responsibilities:

- **Recognize signs of neglect**

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- **Report** suspected abuse/neglect to:
- **Child Protective Services (CPS)**
- **Law enforcement**, depending on the case
- Nurses are **legally required** (mandatory reporters) to report any **suspected child abuse or neglect**, even if they're not 100% sure

➢ Cardiac catheterization (Coronary angiography procedure):

- **Cardiac catheterization** is a diagnostic procedure that uses contrast dye and real-time X-ray (fluoroscopy) to examine the heart's blood vessels, chambers, and valves. It helps detect narrowing or blockages in the coronary arteries.
- **Purpose:**
    - To **assess for coronary artery disease**, valve dysfunction, or congenital heart defects.
- **Post-Procedure Nursing Responsibilities:**
    - Monitor vital signs every 15 minutes initially.
    - Observe **the catheter insertion site** for signs of bleeding or hematoma.
    - Assess peripheral pulses, skin color, and temperature of the affected limb.
    - **Watch for signs of internal bleeding**, such as back or flank pain, which may indicate retroperitoneal hemorrhage.
    - **Maintain the patient on bed** rest with the affected leg straight (if femoral access was used).

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- Monitor for chest pain, allergic reaction to contrast, or arrhythmias.

- **Key Complication to Monitor:**
  - Retroperitoneal bleeding (signs: sudden hypotension, back pain, tachycardia).
  - Vascular occlusion.
  - Hematoma at the insertion site.
  - Contrast-induced nephropathy.

◊ **2. Carotid Endarterectomy:**

- **Surgical procedure for stroke prevention.**
- Purpose:
  - Removes plaque buildup **from the carotid artery in the neck**.
- Used for:
  - Patients at **high risk for stroke** due to **carotid artery narrowing**.
- Target Area:
  - Neck (carotid arteries supplying the brain).
- How it's done:
  - Open surgery is performed to remove the fatty deposits inside the artery.
- Post-Procedure Nursing Responsibilities:
  - **Monitor blood pressure frequently**, as hypertension can stress the surgical site and cause complications such as bleeding or stroke.

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- **Perform frequent neurologic assessments** to detect any signs of stroke, such as changes in level of consciousness, pupil reaction, weakness, or slurred speech.
- **Observe the surgical dressing** for bleeding or swelling, which can compromise the airway.

- Elevate the head of the bed to reduce cerebral swelling.
- Key Sign of Complication:
  - A severe headache after the procedure may indicate increased blood pressure or cerebral complications and must be reported immediately.

➢ **3. Percutaneous Coronary Intervention (PCI):**

- A minimally invasive heart procedure.
- Purpose:
  - Opens **blocked coronary arteries** (the arteries that supply the heart).
- Used for:
  - Patients with angina or heart attack (Myocardial Infarction).
- Target Area:
  - **Heart (coronary arteries)**.
- How it's done:
  - A catheter is inserted (usually through the wrist or groin), a balloon is inflated, and a **stent** may be placed to keep the artery open.
- Post-Procedure Nursing Responsibilities:

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- **Monitor for chest pain**, which could indicate re-occlusion or myocardial infarction.
- **Check for bleeding**, hematoma, or swelling at the catheter insertion site.
- Monitor distal pulses and circulation in the affected limb.
- Encourage fluid intake to flush out contrast dye.
- Administer antiplatelet medications as prescribed (such as aspirin or clopidogrel).

➢ Peripheral arterial disease (PAD):

- A **circulatory problem** causing a **reduced blood flow** through the **arteries** this typically reduces blood flow to the extremity's.
- Most caused by:
  - **Atherosclerosis**, a disease in which plaque clot **builds up in the arteries**, causing them to narrow and stiffen.

⇨ Signs and Symptoms:

- **Intermittent claudication** (leg pain with activity, relieved by rest)
- Cool, pale, or mottled skin on legs
- Hair loss on lower legs
- Weak/absent peripheral pulses

⇨ Femoral populated angioplasty:

- A type of Peripheral Angioplasty:
  - Used to treat Peripheral Arterial Disease (PAD) affecting the femoral and popliteal arteries in the legs.

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- After procedure the client should be able to ambulate without evidence of **ischemia as leg pain.**

➢ **Standards of Nursing Practice and care:**

◊ The Standards of Nursing Practice:

- Are **universal criteria**, **universal rules or guidelines** that help determine if a nurse's actions were:
- **Appropriate** (suitable for the situation)
- **Professional** (following nursing roles and behavior)
- **Safe** (avoiding harm)
- **Effective** (achieving the desired health outcome)
- **Ethical** (respecting patients' rights and morals)

◊ **The Sources Used to Define the Standard of Care:**

◊ 1- Standards of care are not based on one single rule instead, they are defined using **several trusted and official sources**, such as:

- **Statements from agencies** – e.g., health departments or government bodies.
- **Professional organizations** – like the American Nurses Association (ANA).
- **Policies and procedures** – internal hospital or facility guidelines.
- **Textbooks –** nursing education books and references.

◊ 2. The Nurse Practice Act (NPA):

- Each U.S. state has its own **Nurse Practice Act**, which serves as the **legal foundation** for nursing practice. It provides a structured framework to protect patients and guide nurses.
- The NPA:

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- **1-Defines the legal role and scope of practice** for nurses, including:
  - **RN** – Registered Nurse
  - **LPN** – Licensed Practical Nurse
  - **APRN** – Advanced Practice Registered Nurse
- **2-Establishes licensure requirements** that must be met to practice legally as a nurse in that state.
- **3-Outlines disciplinary procedures** for nurses who violate laws, ethical standards, or professional regulations.

◊ **Grants authority to the State Board of Nursing to:**

- Issue licenses
- Enforce regulations
- Investigate complaints
- Take disciplinary action when needed

◊ **Unit Quality improvement committee** They Don't Create the Standards They Apply Them:

- **A Quality Improvement (QI) Committee** does not create the standards.
  - **they apply and monitor them** this committee is a group of healthcare professionals within a unit or department who are responsible for:
  - Monitoring patient care quality
  - Improving safety standards
  - Ensuring staff follows clinical guidelines
- Their Role Includes:
  - **Tracking performance** (e.g., infection rates, medication errors, patient falls)
  - Identifying trends or repeating issues

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- Recommending solutions (e.g., policy changes or staff training)
- Implementing evidence-based practices
- Evaluating results and outcomes
- Reporting issues to hospital leadership for further action

- Why It Matters for the NCLEX:
- Your Role in Quality Improvement:
  - **Recognizing and reporting** errors or near-misses
  - Participating in quality improvement initiatives
  - Suggesting improvements in care delivery
  - Following updated protocols and procedures

◊ Important Note for **Exam QI Committees focus on:**

- Clinical outcomes
- Patient safety
- Adherence to care standards

◊ They do not handle:

- **Patient satisfaction** (subjective concerns)
- Individual nurse behavior (handled by nurse manager)
- Financial performance (addressed by admin or finance)

➢ **During Invasive procedure and resuscitative efforts: (CPR)**

- **The nurse should** allow family member to be present in the room If They desires.
- **Family members** often express a strong desire to be with their loved one during **invasive procedures** or **resuscitation efforts**, including **CPR**.

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- In such situations, nurses and other healthcare providers need to **balance the needs of the patient with the emotional needs** of the family.

⇨ Key Points to Consider:

- **Allowing Family Presence (If Desired):**
  - **The nurse should allow the family member to be present in the room** if they desire,
- **Providing Emotional Support:**
  - The nurse should provide **emotional support** to the family before, during, and after the procedure.
- **Clear Communication:**
  - The nurse must clearly explain to the family the **procedure** being performed, the **risks**, and the **purpose** of resuscitation. It is important to set realistic expectations.
- **It will** Help Coping alleviates and anxiety

➢ **Meniere disease:**

- **inner ear disorder** that affects sense of balance and hearing.
- This disease is usually **chronic and can significantly** impact on a person's quality of life, especially if not properly managed.

⇨ Meniere's disease presents four primary symptoms:

- **Vertigo (Dizziness):** Sudden, severe dizziness that can last from 20 minutes to several hours, often accompanied by nausea and vomiting.

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- **Tinnitus:** A persistent ringing, buzzing, or hissing sound in the ear.
- **Hearing Loss:** progressive hearing loss that may become permanent over time.

⇨ Risk factors:

- **Meniere's disease** is most common in people ages 40 to 60. Females may have a slightly higher risk than men.
- **You may have a higher chance** of getting Meniere's disease if someone in your family has had the condition.
- You may have a higher risk of Meniere's disease if you have an **autoimmune disorder.**

◊ Important NCLEX Tips:

- During an attack, **patient safety is a priority** → fall precautions, dim environment, low stimuli.
- **Avoid sudden head movements**.
- **Low-sodium diet** may help reduce fluid retention.
- Medications may include **diuretics, anti-vertigo agents (meclizine), or antiemetics**.
- In severe or unmanageable cases, **surgical options** may be considered.

➢ Cauda equine syndrome:

- **a rare but serious neurological condition** that occurs when the cauda equina nerves(the bundle of spinal nerves at the lower end of the spinal cord) become compressed.
- This is a **medical emergency** that requires immediate surgical intervention to prevent permanent nerve damage.

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Classification: Internal Use

◊ Causes:

- **Most commonly** caused by a **herniated lumbar DISK** (especially at L4–L5).
- Other causes: trauma, tumors, spinal stenosis, infections.

◊ Key Symptoms of Cauda Equina Syndrome:

- Severe lower back pain
- Numbness in the inner thighs, buttocks, and perineum)
- Bowel or bladder dysfunction (urinary retention or incontinence)
- Lower limb motor weakness or numbness
- Difficulty walking or standing

◊ Herniated Disc and CES:

- **A herniated disc** occurs when **the soft center of a spinal disc** pushes through a tear in the tougher exterior.
- When a **lumbar herniated disc compresses** the cauda equina nerves, it may lead to CES.
- Patients may initially present with pain, but progression to neurologic symptoms signals an emergency.

◊ Nursing and NCLEX Notes

- **Immediate action**: Notify the healthcare provider immediately if a client shows signs of CES.
- Prepare the patient for emergency imaging (e.g., MRI) and possible spinal decompression surgery.
- Delays in treatment can lead to permanent paralysis, incontinence, and loss of sensation.

➢ **Ante embolism sock:**

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- **Anti-embolism stockings**, also known as **compression stockings** or **TED hose** (Thrombo-Embolic Disease hose), are specially designed garments that **apply pressure to the legs** to help **improve circulation**, **reduce swelling**, and **prevent blood clots** in patients, particularly those who are immobile or undergoing surgery.

⇨ Purpose and Benefits:

1. **Prevent Deep Vein Thrombosis (DVT):**
    - Anti-embolism stockings help reduce the risk of **DVT**, a condition where blood clots form in the deep veins of the legs. These clots can travel to the lungs and cause a **pulmonary embolism**, a potentially life-threatening condition.
2. **Improve Circulation:**
    - The stockings **apply graduated compression,** meaning they provide **the highest pressure at the ankle** and decrease as they go up the leg. This **promotes the return of blood to the heart** and reduces the risk of blood pooling in the lower extremities.
3. **Reduce Swelling:**
    - By compressing the veins, anti-embolism stockings help reduce the accumulation of fluids in the tissues of the lower legs, preventing or reducing **edema (swelling)**.
4. **Post-Surgery Recovery:**
    - Patients who have undergone surgery or been immobilized for long periods (e.g., during bed rest or after a stroke) are at increased risk for blood clots, **making anti-embolism stockings a common preventive measure.**

⇨ The socks should not be.

- Rolled down (Folded down).

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- Cut or altered.

➢ Lateral Violence (Horizontal Violence):

- **Can be defined acts** of **aggression Carried** out by **Co-Worker against** another **co-worker** to (de value Colleague, unwarranted criticism/ **intimidation**).

◊ Assertive communication:

- **Assertive communication** is a **therapeutic communication technique** in which the nurse:
  - Speaks **clearly**
  - Expresses concerns or needs **respectfully**
  - Uses a **confident and calm tone**
  - **Advocates** for the patient's safety and rights → All **without being aggressive or passive**
- **Example in Practice:**
  - Doctor, I understand you're busy, but I need to clarify this medication order to ensure patient safety."
  - This is **assertive**: respectful + clear + prioritizing safety

◊ Key Points for NCLEX:

- Assertive ≠ Aggressive.
- It's calm, direct, and respectful.

◊ Used when:

- Advocating on a patient's needs.
- Responding to inappropriate or unprofessional behavior.
- Ensuring safe, effective care.

◊ 1-Lateral Violence:

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- Other acts such as refusing to help a colleague, exclusion from team activities, or assigning unfair workloads also fall under the category of lateral violence.

◊ 2. Unprofessional Conduct – Example:

- If a healthcare provider (HCP) screams at a nurse who calls at night due to a critical patient issue, this is considered unprofessional conduct.
    - **Even if it's during off-hours**, nurses have a **duty to report** urgent concerns, and HCPs are expected to respond respectfully.
    - Verbal abuse or yelling violates professional standards and should be documented and reported.

◊ Scenario 1: Client interaction becomes inappropriate or disrespectful:

- **Intervention:**
- The nurse should use **assertive communication** to redirect the conversation back to the **client's clinical needs**.
- Once the client is stable and their needs are met, the incident should be **reported to the supervisor**.

◊ Scenario 2: A healthcare provider (HCP) screams at the nurse:

- **Intervention:**
- The nurse should use **assertive communication**, which involves a **direct, respectful approach** to prevent miscommunication.

  The nurse should **inform the HCP**—in a professional manner—that such behavior is **unacceptable and will not be tolerated**. The incident should be **documented and reported to the supervisor** as unprofessional conduct.

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⇨ The Nurse Should instruct Staff Member To:

- Document the details of all bullying incident.
- Review the code of Conduct set expectations for behaviour in the workplace.
- Follow the **chain of Command.**
- Set Clear by Telling The bully that your behaviour will not be tolerated.

➢ **Critical Laboratory Result**

- **such as post-blood culture findings** and electrolyte imbalances, require immediate attention and intervention to prevent life-threatening complications.
    - **Nurses play a crucial role** in recognizing, verifying, and promptly responding to these critical results by notifying the healthcare provider (HCP) for further guidance and treatment.

⇨ Timing:

- The healthcare provider should **respond within 60 minutes** of receiving notification of the positive blood culture, as prompt action is required to initiate appropriate antimicrobial therapy and prevent further complications.

⇨ Actions:

- **Notify the healthcare provider immediately**.
- administer medications (as prescribed).
- Monitor vital signs and symptoms: Monitor vital signs and symptoms, Repeat laboratory tests.

◊ Nurse's Responsibilities:

- **Recognize** the critical value.
- **Verify** the lab result with the lab if needed.

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- **Notify** the HCP **immediately**—do not delay.
- **Document** the result, notification time, and provider response.
- Follow orders:
  - Administer prescribed **medications or fluids**
  - Monitor **vital signs**, **level of consciousness**, and **symptoms**
  - Prepare for **repeat labs** or further tests
  - **Ensure communication** with the rest of the healthcare team.

◊ NCLEX Focus:

- Prioritization of care: **Critical lab values always require priority action.**
- Safety: Preventing deterioration through **early intervention**.
- Communication: Using **SBAR format** when reporting abnormal labs to HCP.

➢ **Peak Flow for Asthma client:**

- **The Peak Flow Meter** is a handheld device that measures the peak expiratory flow rate (PEFR), which is the **maximum speed at which** a person **can exhale air after a deep inhalation.**
- It's commonly used in the **management of asthma to assess** the severity of airflow obstruction and to guide treatment decisions.
- **Monitoring peak flow** helps to detect early changes in airway function, allowing for prompt intervention before asthma symptoms worsen.

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⇨ Peak flow readings are often categorized into **zones** to assess the severity of asthma symptoms:

1. Green Zone (80%-100% of Personal Best):

- Indicates controlled asthma. The patient is doing well, and symptoms are minimal or absent.

2. Yellow Zone (50%-80% of Personal Best):

- Indicates that asthma symptoms are worsening. The patient may be experiencing mild symptoms (e.g., cough, wheezing, shortness of breath).

3. Red Zone (Below 50% of Personal Best):

- Indicates a severe asthma attack. The patient may be experiencing significant difficulty breathing, wheezing, or other severe symptoms.

➢ Adjunctive Professional Service:

- **Refer Adjunctive professional services** are specialized healthcare services that are added to **primary nursing or medical care** to support the patient's recovery, rehabilitation, and well-being. These services are not delivered by primary care providers, but they are essential for delivering comprehensive, patient-centered care.

◊ Purpose:

- Enhance the effectiveness of the main treatment plan.
- Address holistic patient needs (physical, mental, emotional, and social).
- Improve patient outcomes, functionality, and quality of life.

◊ Examples of Adjunctive Professional Services:

⇨ Speech Therapy**:**

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- Focus on speech and communication also on swallowing eating Issues and help eat properly.

⇨ Social workers, Social Services

- **Assist with developing coping skills,** securing adequate financial resources or housing and making referrals.
- Find resources for affording the Medication.
- Assess client living situation and arrange for alternate living situation.

⇨ Wound care:

- Resource for assessing and planning the optimal car for any wound.

⇨ Occupational therapy:

- Emphasises the skills necessary for activities daily.
- As (dressing -Bathing - cognitive or Perceptual ability).
- This promotes clients to promote self-care.

⇨ Physical therapy:

- **Focus on Mobility**, ambulation, ability to transfer and use of related equipment, Walker.
- Below Waist.

◊ **Palliative Care and Hospice Services:**

- Palliative care:
  - is **specialized medical care for patients with serious illnesses**, **regardless of the stage or prognosis**.
  - It focuses on **relieving symptoms**, improving **quality of life**, and supporting **emotional, spiritual, and psychological needs**.
  - Can be provided **at any stage** of a serious illness.
  - May be **given alongside curative treatments** (e.g., chemotherapy, dialysis).

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- Managed by an **interdisciplinary team**: doctors, nurses, social workers, chaplains, and more.
- Focuses on **pain control, symptom relief**, and **emotional support**.

◊ Hospice Care:

- Hospice care is a **type of palliative care**, but it's only for **patients with a terminal illness** (usually life expectancy of **6 months or less**) who are **no longer receiving curative treatment**.
- No curative treatment is given.
- Can be provided at home, in a hospice facility, or in a hospital.
- Focuses on **comfort**, **dignity**, and **support for both patient and family**.
- Encourages acceptance of death as a natural part of life

◊ Nursing Role:

- Assess and manage pain and symptoms.
- Educate family and patient about care goals.
- Provide emotional and spiritual support.
- Advocate for patient wishes and advanced directives.
- Coordinate with interdisciplinary team.

◊ Why It's Important for NCLEX:

- Questions may test **recognition of goals of care** (comfort vs. curative).
- Nurses must know when to suggest palliative vs. hospice services.
- Ethical considerations like **patient autonomy** and **advanced directives** are commonly tested.

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➢ Cost effective Care:

- **Cost-effective care means** providing high-quality care that achieves the best outcomes for the patient while using **healthcare resources wisely.**
- It involves **reducing unnecessary costs**, avoiding waste, and focusing on prevention, early treatment, and appropriate resource use.

◊ Goals of Cost-Effective Care:

- Maintain quality and safety.
- Use available resources efficiently.
- Prevent complications that may increase hospital stays or treatment costs.
- Promote long-term health outcomes with fewer interventions.

◊ NCLEX-Relevant Examples:

- Using Clean Gloves Instead of Sterile (When Appropriate)
  - Why? **Sterile gloves are more expensive**.
  - When appropriate (e.g., for non-sterile dressing changes), using clean gloves saves cost without compromising patient safety.

◊ Preventive Education & Early Intervention:

- **Example: A nurse educates a hypertensive patient about:**
  - Regular BP monitoring
  - Low-salt diet
  - Medication adherence
- Result: Prevents future complications like stroke or MI → less hospital use.

◊ Telehealth Services:

- Example: A nurse follows up post-op via video call.

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- Benefit: No travel cost, quick care, avoids unnecessary ER visit.

◊ Important Supply Notes for NCLEX:

- **Supplies entered** into a client's room are considered contaminated.
- Cannot be returned to central supply.
- Can be sent home with the client if safe and appropriate (e.g., diabetic syringes).
- Tourniquets: Single patient use only.
- **Sterile solutions**: Must be discarded after 24 hours of opening to prevent infection.
- Why It Matters for NCLEX:
- You will be tested on:
- Choosing the most cost-effective nursing action.
- Recognizing wasteful or inappropriate use of resources.
- Applying infection control + financial responsibility at the same time.

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(2)

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Fundamental

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1/Acid and Base

➢ **ABG:**

- **Arterial Blood Gas (ABG)** is a test that measures the levels of oxygen **(O_2),** carbon dioxide **(CO_2),** and **pH** in arterial blood.
- It helps assess:
  - **Respiratory function**, acid-base balance, and **oxygenation status** in critically ill patients.

⇨ **First, PH:**

- The normal range is:

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- 7.35 – 7.45.

- It will determine whether the problem is**:**
  - **Acidosis** or **Alkalosis.**
- **Alkalosis:** we will see PH above **7.45**
- **Acidosis:** we will see PH below **7.35**

◊ **Second, HCO3:**

- HCO_3 **is part of the metabolic (renal) component** of ABG interpretation.
- It reflects:
  - **How the kidneys** are managing the acid-base balance in the body.
- The normal range is (22- 28).
- If above 28 that means **Alkalosis.**
- If below 22 that's mean **Acidosis.**

⇨ **Third, Paco2:**

- The normal is (35 – 45).
- It reflects:
  - The respiratory component (controlled by the lungs).
- If above 45 that's mean **Acidosis**
- If below 35 that's mean **Alkalosis**
- **Paco2** Too much **will** get body in ACIDOSIS.

⇨ **When will talk about Acidosis There are two forms:**

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◊ **1-** Carbon dioxide (PaCO2) is our Acid helps to put the body in Acidosis.

- Too much Co_2 ↑ get the body in **Acidosis.**

◊ 2- Also, we have **H2 is a hydrogen ion** which we can find in:

- **First in the stomach:**
  - **Parietal cells** in the stomach secrete **hydrochloric acid (HCl),** which contain hydrogen ions **(H^+)** and chloride ions **(Cl^-).**
  - This acid **plays a crucial role** in digesting food by breaking down proteins and killing harmful bacteria.
- **Second, in the kidney:**
  - The kidneys filter the blood, and part of their job is to **remove excess hydrogen ions** from the bloodstream to help maintain the body's **acid-base balance**.
  - This process occurs in the **renal tubules**.

◊ **So, what makes the body Acidosis?**

- Hydrogen ions.
- $\mathbf{PaCo_2}$ Carbon dioxide.

◊ **What makes the body Alkalosis?**

- Hco_3 **Bicarbonate** (Base).

◊ **There are two organ Control Acid and Base:**

- The **lungs** and the **Kidneys**.

◊ **Let's talk about the Respiratory problem:**

⇨ So, we talk about the Lung:

- Control **Carbon dioxide which is $\mathbf{Paco2}$**:
  - That's mean the word **Respiratory** is associated with **Paco2.**

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- We breathe **(in)** oxygen and breathe (out) **Co2.**

⇨ There are two types of acid-base disturbances related to lung function:

- **First, Respiratory Acidosis** and in this case the client will have **hypoventilation.**
- **Second, Respiratory Alkalosis** and in this case the client will have **hyperventilation.**

⇨ First, we will talk about paco2 over 45 (Respiratory Acidosis):

- In this case which we call **hypoventilation** means less out **Co2** so more $\mathbf{Co_2}$, **Retained in the body** which makes the body **more Acidic** that's mean more **Carbon dioxide** is more **Carbon de acid** occurs to this patient.

◊ Examples:

- **Every Condition** that's breathing **too slowly** is acidosis for Respiratory Acidosis as **sleep apnea, head trauma, post-operative**, Opioid overdose, alcohol intoxication, Benzodiazepines (Diazepam)**,** Pneumonia and COPD or Asthma attack

◊ Just focus on this example:

- Patient with **increased ICP** and has PH normal and **paco2 above 45** and HCP order to **increase respiratory** rate of the patient ventilator the nurse knows this change should have which outcome of the patient ICP?
- Because the patient **acidosis** which means cannot breathe co2 out which leads to **press to brain and will increase more pressur**e so the doctor order that to make the **co2 get out** and will lead to less pressure to the brain

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⇨ **Second, paco2 below 35 (Respiratory Alkalosis)**

- In this case, which we call Hyperventilation **So more Co_2 out** from the body which makes the body **more alkalosis.**

◊ Examples:

- Every Condition that's breathing too fast is Alkalosis for respiratory alkalosis (Hyperventilation=increase respiratory rate) anxiety attack and panic attack.

◊ **Let's talk about the Metabolic problem:**

⇨ So, talk about Kidney, stomach, intestine:

- There are two phases effect in the **Alkalosis (Metabolic)** its Control by **HCO3** That's mean word, **Metabolic** is associated with **HCO3.**

⇨ **Metabolic alkalosis** is the **stomach:**

  - **As we discussed Hydrogen ions** find in the **stomach** alright, **so** the **stomach** is our **acid** which means anything inside the stomach it's Acid. So, in case of **Vomiting or NGT** suction we will get all acid outside which makes the body in alkalosis status.

⇨ **Metabolic acidosis is an example of intestine:**

  - **The intestine is our base (especially the small intestine) contains bicarbonate (HCO_3^-),** which is basic (alkaline). that's mean anything inside the **intestine is BASE.**
    - **So, in case of** Diarrhea the patient will get all base out which make the body in acidosis. (Metabolic acidosis)
  - Also, the **Renal excrete H2 (hydrogen ions) VIA urine** and **as we discussed hydrogen ions find in kidney and excrete through urine. So,** in case of **renal failure** for sure the patient

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cannot get the acid out which make the body in acidosis because **H2** will retain in the body and make too much acidosis in the body. (Metabolic acidosis)

- **Also, in** DKA diabetic ketoacidosis. (Metabolic acidosis).

➢ **Which client will be in Respiratory acidosis?**

- Morphine overdose.
- CODD.
- Asthma attack
- Alcohol.
- Apnea.

➢ **How can I solve the question for PH:**

◊ **PH:** 7.35 to 7.45

◊ **HCO3**: 22 TO 28

◊ **PCO2**: 35 TO 45

➢ **Just use this strategy:**

- Always Look to **PH First**.
- **Match** PH with Partner.
- And check if **compensated** or **uncompensated.**

➢ **How can I know compensated or non-compensated?**

⇨ **If PH Normal**:

- Mean **Fully Compensated.**

⇨ **PH not normal**:

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- Mean **uncompensated.**

⇨ **Partially compensated so you must use this strategy:**

- First, in case PH is **not normal that's mean Uncompensated**.
- Second step, ask yourself if it's a **partial compensation** or **uncompensated.**

⇨ To know the answer, follow this:

  - Check whether the **other item tries to help or not.**
  - If it tries to help that's mean **partial compensation**.
  - If it's not trying to help which means (Normal) that's mean its **uncompensated.**

➢ **How does the nurse expect the client to show compensation for the following ABG values?**

- PH = 7.20 acidosis
- HCO3= 15 Metabolic acidosis
- PCo2=37 normal

⇨ Decreased respiratory rate

⇨ increased respiratory rate

⇨ increased renal retention

➢ **Most Important Objective data when determining if a client is Hypoxia?**

- **Abnormal blood gases "ABG"**

⇨ Best Diagnostic test to Evaluate patient oxygenation ventilation After a Traumatic brain injury?

- Arterial blood gases ABG

⇨ Allen's test:

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- a clinical procedure used to **evaluate the patency (openness**) of the **ulnar artery and radial artery** in the hand, specifically to ensure that the ulnar artery is providing adequate blood flow to the hand when the radial artery is compromised or when there is a need to assess for arterial disease.

⇨ Essential action after ABGs is

- Apply pressure to puncture Site and this is the priority Intervention following ABG Procedure:

➢ **Examples:**

- **PH= 7.25** Acidosis → **uncompensated**
- **Paco2 =55** ACIDOSIS
- **HCO3=25** Normal

⇨ **Respiratory Acidosis is uncompensated.**

- **PH 7,57** ... Alkalosis....**uncompensated**
- **Paco2. 25**..... Alkalosis
- **Hco3. 22**.....Normal

⇨ **Respiratory alkalosis uncompensated**

- **PH 7, 21**.... Acidosis.... uncompensated
- **Paco2....** 39....Normal
- **Hco3**.... 19.....Acidosis

⇨ **Metabolic acidosis uncompensated**

- **PH. 7, 32....** Acidosis
- **Pco2...55.....** Acidosis

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- **Hco3.....42....** Alkalosis

◊ **Respiratory acidosis is partially compensated.**

- **PH 7, 55....** Alkalosis
- **Paco2...49.....** Acidosis
- **Hco3...35.....** Alkalosis

⇨ **Metabolic alkalosis is partially compensated.**

- **PH 7, 37....Normal** (fully compensated) and near (Acidosis)
- **Paco2...52.....** Acidosis
- **Hco3...32....**Alkalosis
- **Respiratory acidosis with fully compensated.**

- **PH ...7,43.....**Normal ……. Near Alkalosis
- **Paco2...43....** normal
- **HCO3....28** Alkalosis……. METABOLIC

◊ **Metabolic alkalosis fully compensated.**

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Electrolytes

➢ Hormones Released by the Posterior Pituitary:

- **ADH (Antidiuretic Hormone) / Vasopressin:**
  - Function: Regulates the **body's water balance** by telling the kidneys to **retain water.**
  - Effect:
  - Reduces urine output and helps maintain blood pressure and hydration.

◊ If ADH is ↑ (High ADH):

- The kidneys **retain too much water**
- Leads to **dilution of sodium in the blood**
- Causes **Hyponatremia** (low sodium)
- Urine becomes **concentrated and low in volume**
- **Example: SIADH (Syndrome of Inappropriate ADH Secretion**

➢ Hormones Released by Adrenal Cortex:

◊ **Aldosterone**.

- Hormone helps regulate **blood pressure** by managing the levels of **sodium (salt)** and **potassium** in the blood and impacting blood volume.

- **Aldosterone's Function – Simplified Explanation:**
  - Imagine aldosterone is "talking" to the kidney and says:
  - Bring back the **sodium (Na^+) into the body**
  - Send the **potassium (K^+)** out in the urine
  - Sodium will pull water with it → this increases blood pressure.

◊ Effect of Aldosterone Imbalance:

- in Addison's disease:

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- a disorder in which the **adrenal glands do not produce enough hormones**, mainly **cortisol** and **aldosterone**.
- This hormone deficiency leads to **low sodium**, **high potassium**, **and low blood pressure**.

- Cushing's Syndrome:
  - Condition caused by excessive **cortisol levels**, and in some cases, increased **aldosterone** either due to overactive adrenal glands or long-term corticosteroid therapy.
- So, in case **High Aldosterone:**
  - causes increases in **sodium reabsorption** which causes **hypernatremia** and **loss of potassium**
- When aldosterone levels are low:
  - the kidneys cannot reabsorb sodium effectively or excrete potassium properly, leading to **hyponatremia and hyperkalemia**.

➢ **Potassium K^+ (3.5- 5):**

◊ Function of K^+ Priority:

- Potassium plays a critical role in **heart function, muscle contraction**, and nerve signaling. Any imbalance can lead to life-threatening arrhythmia.

◊ **Hypokalemia (Below 3.5) the Manifestations: -**

⇨ On the Heart:

- **Low and Slow Pumps** so will see **Flat T wave** and **ST depression** in ECG.

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⇨ On Neuromuscular:

- Shallow Respiration, it's Most deadly.
- **Decrease** deep tendon reflexes (Sometimes called the **stretch reflex** or **myotatic reflex** because of the **stretch action** and the **muscle** response involve).
- **Hyporeflexia:**
    - Happens when your skeletal muscles have a decreased or absent reflex response.
- **Muscle:** Weakness, cramps, paralysis (Can affect diaphragm → Respiratory arrest!)

⇨ On Gi = Low and Slow

- Constipation
- Hypoactive bowel sounds
- **Paralytic ileus:**
    - It's Paralyzed intestine Priority because Risk for **SBO** small bowel obstruction.

⇨ Causes of Hypokalemia:

- **Fluid Loss** means electrolyte Loss.
- Diarrhea, Diuretics, Diet Low Potassium.
- Cushing's Syndrome **(Increased aldosterone → K^+ loss).**
- DKA.

◊ **Hyperkalemia the Manifestations (over 5.0):**

⇨ On Heart:

- High Pumps so will see on ECG **Peaked T wave and St Elevation.**

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- Sever **Ventricular Fibrillation**.
- Cardiac arrest **Severe bradycardia (slow heart rate)** ,**Hypotension (low blood pressure)**, **Eventually → Cardiac Arres**

⇨ On Neuro muscular→ High

- **Increased DTR** (Hyperreflexia refers to **hyperactive or repeating** (clonic) reflexes).
- On Gi=High Pump
- Diarrhea, Hyperactive bowel Sounds

⇨ Causes Hyperkalemia:

- Renal Failure.
- **Adrenal insufficiency** (Addison's Disease → Low aldosterone = K^+ retention).
- Excess K^+ intake (IV K^+, Salt substitutes, Supplements)
- Drugs (**Potassium-sparing diuretics**, ACE inhibitors, NSAIDs).

➢ Sodium Na (135-145)

◊ Function of Sodium**:**

- Sodium affects blood pressure by **controlling water retention**. **Regulates Blood Pressure & Volume**
- Sodium controls **water retention**, which directly affects blood **volume and pressure**
- More sodium = more water = ↑ **blood pressure.**
- Quick Tip:

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- Sodium pulls water like a magnet. So, wherever sodium goes, **water follows**

⇨ Causes of Hyponatremia (Below 135):

- **Na+ excretion increased** (Diuretics, Vomiting, Diarrhea, Sweating)
- **Overload of fluids** (CHF, Kidney failure, SIADH) → Dilutes sodium
- **Na+ intake low** (Malnutrition, Fasting)
- **Increase excess ADH.**

⇨ Hyponatremia the Manifestations:

- **Neuro:** Confusion, seizures, headache (due to brain swelling).
- **Muscles:** Weakness, fatigue.
- **Heart:** Hypotension, tachycardia
- GI: Nausea, vomiting, diarrhea.

⇨ NCLEX Treatment:

- **Mild:** Fluid restriction, Sodium-rich diet
- **Severe:** Hypertonic saline (3% NaCl IV) SLOWLY
- Monitor for seizures & neuro changes!

◊ **Hypernatremia the Manifestations (Over 145):**

- Edema (Very swollen body).
- Flushed Red Rosy skin.
- Increased muscle Tone.
- Swollen and dry Tongue.
- Nausea vomiting.
- Fever, flushed skin, Restless, irritable, confused Extreme thirst

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⇨ Causes of Hypernatremia:

- **Low ADH (antidiuretic hormones),** Diabetes insipidus
- Rapid respirations
- **Watery diarrhea** makes the body dry so high sodium.
- Loss of Thirst he cannot explain Thirst, Immobility Patient.
- Sodium excretion decreased (kidney disease)
- Aldosterone problems (Aldosterone retains Na^+)
- Loss of fluids (Dehydration, fever, sweating, burns)
- Thirst impairment (Elderly, NPO patients)

➢ Chloride (CL 97-107):

◊ Function Maintains:

- **Maintains Fluid Balance**: Works with sodium (Na^+) to regulate osmotic pressure and hydration.
- **Supports Nerve & Muscle Function**: Works with sodium and potassium to transmit nerve impulses.

◊ Hypochloremia Causes:

- Hormonal imbalance (SIADH) → Retains water, diluting Cl^-
- Loss of fluids (Vomiting, Diarrhea, NG suction, Sweating)
- Overhydration (Too much water intake).
- Renal disease (Kidneys lose Cl^-).
- Manifestations of Hypochloremia (Below 97):
- Neuro: Confusion, irritability, tremors
- Muscles: tetany, weakness

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- Heart: Hypotension, arrhythmias
- GI: Nausea, vomiting

⇨ NCLEX Treatment

- **Correct the underlying cause** (Stop vomiting/diarrhea, adjust diuretics)
- Increase Cl^- intake (Salt tablets, Salty foods)
- IV Fluids (Normal Saline, 0.9% NaCl, or Lactated Ringers)
- Monitor for metabolic alkalosis & electrolyte imbalances

◊ **Hyperchloremia (Over 107):**

◊ Signs & Symptoms ("HYPERCHLORIDE" - Similar to Hypernatremia):

- Neuro: Lethargy, confusion.
- Muscles: Weakness, deep rapid breathing (Kussmaul respirations)
- Heart: Hypertension, dysrhythmias.
- GI: Nausea, vomiting, diarrhea.

◊ Causes of hypercholerimia:

- Cushing's Syndrome (High cortisol → Cl^- retention)
- Chronic steroid therapy promotes sodium and chloride retention
- Overdose of IV normal saline (0.9% NaCl)
- Renal failure (Kidneys can't excrete Cl^- properly)

◊ NCLEX Treatment:

- Correct dehydration (Hypotonic IV fluids: 0.45% NaCl or D5W)
- Sodium Bicarbonate (If metabolic acidosis is present)
- Diuretics (Furosemide/Loop Diuretics) to excrete Cl^-.

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- Monitor LOC, electrolytes, and acid-base balance

➢ Magnesium (Mg 1.3/2.1):

◊ Function:

- Magnesium is essential for **nerve function**, **muscle contraction** (including the heart), enzyme activation, and energy production

◊ Hypomagnesaemia the Manifestations (Below 1.3):

- Causes:

- Limited intake (Malnutrition, Alcoholism, Starvation)
- Other electrolyte imbalances (Hypokalemia, Hypocalcemia)
- Wasting Mg^{2+} (Diuretics, Kidney disease, Loop diuretics like Furosemide)
- Malabsorption issues (**Crohn's, Celiac**, Diarrhea, Vomiting, NG suction)
- Alcoholism (Increases Mg^{2+} excretion).

◊ On Heart:

- Torsade's de Points ECG Leading to V. Fib (Ventricular Fibrillation)

◊ Hypermagnesemia (Over 2.1):

◊ Causes ("MAG")

- Medications (Too much Mg^{2+} from laxatives, antacids, IV Mg^{2+})
- Addison's Disease (Adrenal insufficiency leads to Mg^{2+} retention)
- Renal failure can't excrete Mg^{2+}.

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⇨ Signs & Symptoms :

- Lethargy (Weakness, drowsy, confused)
- Extremely weak muscles (Flaccid paralysis, hyporeflexia)
- Trouble breathing (Respiratory depression, weak diaphragm)
- Hypotension (Vasodilation = Low BP)
- Arrhythmias (Bradycardia, heart block, cardiac arrest)
- Red face (Flushing, warm skin)
- GI symptoms (Nausea, vomiting)
- Impaired clotting (Risk for bleeding)
- Cardiac arrest (Severe cases)

➢ Calcium (CA 9 - 10.5):

◊ Function.

- Calcium is essential for **bone health, nerve transmission**, muscle contraction (including the heart), blood clotting, and hormone secretion.

⇨ **Hypocalcemia Manifestations (Below 9.0):**

- **T-Trousseaus Sign that's** Twerking arm When BP Cuffing
- Tetany muscle spasms all over
- **Chvostek's Sign** that's Cheek Smile When stroking Face.
- Diarrhea
- Weak Bones

⇨ Causes of Hypocalcemia

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- **Hypoparathyroidism** because Low parathyroid hormone (PTH) lead to **Low Calcium.**
- **Renal Failure.** (Chronic kidney disease CDK) because in case of **Low calcium** leads to retention of **phosphate** which cause **Hyperphosphatemia.**

⇨ **Hypercalcemia Manifestations (Over 10.5)**

- Kidney Stones, moans groans and Renal Calculi.
- Constipation
- Bone pain
- Sever Muscle Weakness Lethargy
- Calcium Control by PTH

⇨ Causes

- Hyperparathyroidism (High PTH lead to high Calcium).
- Cancer.

➢ **Phosphate (3- 4.5)**

- Inverse relationship with calcium
- **Ca** High= **Phosphate** Low
- **Ca** Low = **Phosphate** High

⇨ **Hyperphosphatemia Manifestations (over 4.5)**

- Think about low calcium so you will see Trousseaus sign and Chvostek sign.
- Weak (Bones, blood, Beasts).

⇨ Cause of Hyperphosphatemia:

- Renal failure chronic kidney disease.

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⇨ **Hypophosphatemia Manifestations (Below 3)**

- Think of High Calcium signs.
- Kidney Stones (Means, groans) it's Called Renal Calculi
- Constipation, Bone Pain, Sever Musca Weather lethargy.

⇨ Causes of Hypophosphatemia:

- Hyperparathyroidism.
- Genetic and Cancer.

➢ **Foods rich in Electrolytes.**

➢ **Potassium: (K 3.5- 5)**

- Any **Potassium (K^+)**
- **Normal Range:** 3.5 – 5.0 mEq/L
- **Food Sources:**
- Bananas, oranges, apricots
- Leafy green vegetables (e.g., spinach)
- Potatoes, tomatoes
- Avocados
- Salt substitutes (contain potassium chloride)

➢ **Sodium (Na^+):**

- **Normal Range:** 135 – 145 mEq/L
- **Food Sources:**
- Table salt
- Canned and processed foods
- Cheese cured meats.

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➢ Magnesium (Mg^{2+})

- **Normal Range:** 1.3 – 2.1 mEq/L
- **Food Sources:**
- Leafy green vegetables (e.g., spinach)
- Almonds, cashews
- Whole grains
- Yogurt
- Dark chocolate

➢ Calcium (Ca^{2+}):

- **Normal Range:** 9.0 – 10.5 mg/dL
- **Food Sources:**
- Milk and dairy products
- Cheese, yogurt
- Green leafy vegetables (e.g., kale, broccoli)
- Fortified cereals and juices.

➢ Phosphate (PO_4^{3-}):

- **Normal Range:** 3.0 – 4.5 mg/dL
- **Food Sources:**
- Dairy products
- Meats and poultry
- Beans and legumes
- Whole grains, nuts.

➢ Chloride (Cl^-):

- **Normal Range:** 97 – 107 mEq/L

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Classification: Internal Use

- **Food Sources:**
- Table salt and salty snacks
- Processed food
- Seaweed
- Tomato juice
- Substitutes

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3-Basic Care

➢ Intervention to promote Safety when using crutches:

- Keep the environment clear and remove rugs.
- Wear slippers or shoes with Rubber non-skid or without laces to reduce fall risk.
- Keep the rubber tips of crutches dry.

⇨ Complication of using crutches to Long Time:

- **Crutch paralysis** is a reversible Condition Caused by Excessive and prolonged Pressure on the radial nerve at axillary.

⇨ Manifestations of crutch Paralysis.

- Weakness, numbness, tingling of the arm, wrist, and hand.

⇨ Proper Fit of Crutches:

- **Crutch height:** 2–3 finger widths (about 1.5 inches) between the axilla (armpit) and the crutch pad.
- **Handgrip position**: Allows for a 20–30° elbow flexion when the client holds the handgrips.
- **Weight-bearing:** Never rest body weight on the axilla to prevent brachial nerve damage (NCLEX loves this one).
- **Never use someone** else's crutches because this crutch is measured for only one client.
- **Before patients** start ambulating with Crutches, Make Sure Wear a gait belt.
- Before going to start make sure to start in tripod Position and it looks Tringle.

⇨ Safety Tips:

- **Use rubber tips** on the crutches.
- **Keep floors dry** and free of obstacles.
- Avoid loose rugs or clutter.

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- Wear non-skid shoes.

➢ Therapeutic communication techniques:

⇨ Active Listening:

- Fully focusing on the patient, showing interest and understanding. Example: Nodding, making eye contact, and saying, "I see" or "Go on."

⇨ Silence:

- Allowing quiet moments to encourage the patient to reflect or continue speaking.
- Useful when emotions are high, or the patient is processing thoughts.

⇨ Open-Ended Questions:

- Encouraging more than yes/no answers.
  Example: “Can you tell me more about how you’ve been feeling?”

⇨ Non-Therapeutic Communication

- Expressing approval or disapproval
- Give advice.
- Asking why.

⇨ When speak with the client has Alzheimer disease: NCLEX-Focused Communication Tips for Clients with Alzheimer’s Disease:

- The Nurse should Face the client and use Clear Simple statement and questions.

⇨ Use Simple, Clear Language:

- Speak slowly, using short sentences.
- Use familiar words and avoid medical jargon.

⇨ Remain Calm and Patient:

- Don’t argue or correct if they’re confused.
- NCLEX Tip: Validation and redirection are better than confrontation.

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- Facing The Clients while speaking
- Use simple statement and question.

⇨ Client with hearing Impairment it's important for nurse to establish techniques that Promote effective communication:

- Directly Face to the Client.
- Ensuring that hearing aids are applied and function before speaking.
- obtain professional sign language Interpreter.
- Provide written material.
- Visibly gaining the Clients attention before speaking.
- Using facial expression.
- **Do not raise your voice.**

➢ **in case of client has low neutrophil, it indicates a condition where you have a low number of white blood cells:**

- A low neutrophil count (called neutropenia) puts the client at high risk for **infection,** and neutropenic precautions are essential to protect them.

⇨ Common Causes of Neutropenia:

- Chemotherapy or Radiation
- Bone marrow disorders (e.g., leukemia)
- Severe infections.

➢ Do This:

- Place in **private room**
- Ensure **strict hand hygiene** for everyone (staff, visitors, patient)

➢ Avoid This:

- No fresh flowers or potted plants
- No raw or undercooked food (e.g. sushi, unwashed fruits)

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Classification: Internal Use

➢ Do This:

- Use **gloves, masks, and gowns** as needed
- **Daily baths & oral hygiene** (soft toothbrush, no flossing if platelets are low)
- Monitor **temperature daily** – Report even low-grade fevers!

➢ Avoid This:

- No visitors with infections, colds, or recent vaccinations
- No standing water (humidifiers, vases)
- No invasive procedures unless necessary

➢ **If there is Mental Status change:**

- Restless, agitation, Confusion is often related to Underlying Medial Condition (hypoxia –Hypoglycaemia).
- The Nurse should assess Pulse oximeter to assess for hypoxia this is priority.

⇨ Pulse Oximeter:

- **Non-Invasive device** that estimates oxygen saturation by using sensor. Because the pulse Oximeter Sensor depend on **adequate tissue perfusion** are condition **associated** with low blood Flow or low perfusion so **Hypotension** can affect accuracy of a pulse oximeter reading.

➢ **In Case if we have a client with lifelong disease as elderly client and he got angry From UAP who is trying to help him:**

- NCLEX-Focused Approach:

◊ Recognize the Emotion (Therapeutic Communication):

- First, acknowledge the client's feelings.
- Show empathy. Lifelong illness can lead to frustration, loss of independence, or depression.
- Example:

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- “I can see that you're upset. Can you tell me what’s bothering you?”

◊ 2. Do Not Blame or Scold the Client or UAP:

- Avoid taking sides or placing blame.
- Focus on resolution and understanding the root of the anger.

◊ RN Intervention is Appropriate:

- The RN should assess why the client is upset and whether care is being delivered appropriately.
- Never delegate emotional or behavioral issues to the UAP it’s outside their scope.
  - **UAP** play an important role in developing interdisciplinary Plan of Car for hygiene and activities of daily living. Therefore, the nurse and UAP should go together to learn about the Client's Concerns.
- The Nurse can show UAP How to deal with those issues.

⇨ To prevent Pressure injuries for elder client or immobility client:

- **Use emollients (barrier creams)** to hydrate protect and strength the skin.
- use foam padding on Chairs and Commode Seats
- Reposition client every 2hrs use Pillows, foam, and wades.
- Message is not acceptable intervention.

➢ **What about Client blindness due to diabetic retinopathy:**

◊ **Key Nursing Interventions:**

- 1. Promote Safety in the Environment:
- Keep furniture and personal items in the same place.
- Ensure the room is free from clutter or tripping hazards.

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- Orient the client to their surroundings verbally (e.g., “Your call bell is to your right.”).
- 2. Use the “Clock” Method:
- When describing where things are on a plate:
- “Your chicken is at 6 o’clock, vegetables at 3 o’clock.”
- 3. Announce Your Presence:
- Always say your name and speak before touching the client.
- Hold the client from the elbow and walk a half Step ahead for guidance.
- Speak **in a normal voice.**

⇨ Ambulate Client who is legally blind:

- The Nurse should Use sighted **guide technique** by Walking ahead with the client nurse's elbow.

➢ **There are several life span Changes that occur with aging clients when initiating IV Therapy and Caring for IV infusion to older clients:**

◊ Important conditions include:

- Use Infusion Pump is recommended.
- Older Clients with **Fragile Veins** are at Increased for IV Filtration so the site should be **Monitor every 1-2 hrs.**

- **Fragile skin** may easily tear so use Skin Protectant and Minimal tourniquet pressure it's important.
- May has **hearing and visual impairment** so speak with him clearly.
- Use smallest gauge catheter (24-26 gauge)
- Use 5-15 degree oh insertion to vein.

⇨ IV access:

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- Is necessary for **administering intermittent IV OPIOD** to Control Post Operate Pain.

- **A saline Lock (Flush)** Keeps the line patent and allows greater mobility continuous infusion.

⇨ After-operation If HCP order discontinues IV Normal saline:

- The Nurse Should Converted to **Saline Lock** to maintain IV Access.
- **A saline lock** IV allows a medical provider to administer fluids or medications directly into the vein without having to start a new IV for each medication.

➢ **The Nurse Should Instruct the Client who did CABG:**

◊ Wound Care Teaching for CABG (Chest and Leg Sites):

- **1-Keep the Incisions Clean and Dry:**
- Cleanse with mild soap and water during a shower (not bath) after clearing by provider.
- Pat dries with a clean towel — no rubbing.

◊ **2. Signs of Infection — Report If Noticed:**

- Redness, swelling, or warmth around incision
- Increased pain at site
- Foul-smelling drainage (pus-like)
- Fever > 100.4°F (38°C)

◊ **Do Not Apply Lotions, Creams, or Powders on the incision unless prescribed:**

- Wear Loose, Comfortable Clothing
- Avoid friction or pressure on the wound.

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◊ **Monitor for Poor Circulation** (especially in the leg site) Numbness, tingling, coldness, or color change in the leg — report these signs immediately.

◊ **6.Avoid Crossing Legs** or Standing for Long Periods Promotes circulation and prevents blood clots.

◊ **7. Gradually Increase Activity as Tolerated:**

- Follow cardiac rehab or physical therapy instructions.
- Avoid heavy lifting, pulling, or pushing until cleared by the provider.

◊ **8. Elevate the Legs (especially if swollen)** Use pillows to elevate legs when sitting or lying down. 9. Pain Management Take prescribed pain meds as directed. Use splinting (e.g., hugging a pillow to chest) when coughing or deep breathing to reduce chest discomfort.

➢ **Appropriate intervention for a Client with Low Back pain:**

- Alternating (hot and Cold) Compresses to Promote circulation.
- Prepare clients for physical therapy.
- Requesting a prescription for muscle relaxants
- Anticipate massage therapy.
- Prepare the Client For acupuncture to stimulate nerves system.
- Administer for NSAIDs MEDICATION acetaminophen.

◊ **NCLEX: Guidelines for Working with an Interpreter:**

⇨ **DO:**

1. **Use a Trained Medical Interpreter:**
    - Never use a **family member, child, or untrained staff** as an interpreter.
2. **Look Directly at the Client**

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- **Speak to the client**, not the interpreter (e.g., say “How are *you* feeling?” not “Ask her how she feels.”)

3. **Speak Clearly and Slowly:**
   - Use short, simple sentences. Avoid jargon and idioms.
4. **Pause Frequently:**
   - Give the interpreter time to translate after every few sentences.
5. **Ask One Question at a Time:**
   - Prevents confusion and ensures each question is answered thoroughly.
6. **Use Open-Ended Questions:**
   - Helps assess client understanding and encourages more detailed responses.
7. **Confirm Understanding:**
   - Use the “**teach-back method**” — ask the client to repeat back instructions in their own words
8. **Ensure Privacy and Confidentiality:**
   - Interpreters must follow confidentiality rules just like healthcare workers.

⇨ **DON’T:**

- Don’t use **technical medical terms** the client may not understand.
- Don’t **talk fast or loudly** — it doesn’t improve understanding.
- Don’t **exclude the client** by talking only to the interpreter.
- Don’t rely on **non-verbal cues** alone to assess comprehension.

➢ **Initial management Nursing Actions of Heat exhaustion:**

1. **Moving the Client to a Cooler Environment:**
   - Get them out of the heat (e.g., into the shade or air-conditioned room).
2. **Have the Client Lie Down and Rest:**

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- Elevate legs slightly to promote circulation.

3. **Remove Excess or Tight Clothing:**
   - Helps cool the body more effectively.
4. **Apply Cool, Wet Cloths or a Fan:**
   - Sponge the skin with cool water or use fans to promote evaporation.
5. **Give Cool Fluids if Conscious:**
   - Encourage sips of **water or electrolyte fluids (like sports drinks)**.
   - Avoid caffeine or alcohol.
6. **Monitor Vital Signs:**

- Watch for signs of worsening (e.g., increasing temp, confusion, fainting → may indicate **heat stroke**).

➢ When a feeding tube becomes clogged Initial Nursing Actions:

1. **Attempt to Flush the Tube Gently with Warm Water**
   - Use a **30–60 mL syringe** with **warm water** (not hot!).
   - Gently push and pull the plunger back and forth, this can help loosen the clog.
   - Never force the flush could cause **tube rupture** or injury.
2. **Digestive enzyme** solution **helps** your body break down food and absorb nutrients may help **if warm water is not** effective.
3. **Reposition the Client**
   - Sometimes a kink or bend in the tube is the cause.
4. **Repeat Flushing if Needed**
   - Wait a few minutes, then try a second warm water flush.
   - Up to 2–3 attempts may be reasonable per policy.

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➢ Ear Irrigation:

- Assess The Client for fever or ear infection.
- Place the Client in setting Position.
- Place a Towel under the affected ear.
- Straighten the ear Canal by **pulling the pinna up and back** for adult if more than 3 years.
- If **less than 3 years** pull the pinna down and back.
- Gently irrigate the ear Canal with a slow steady Flow.

➢ To Promote a normal rest and sleep Pattern for a critically ill in ICU the nurse should:

◊ **Reduce Noise and Light:**

- Dim lights at night
- Lower alarm volumes (within safe limits)
- Limit conversations and overhead paging near the client's room

◊ **Use Eye Masks and Earplugs** *(if appropriate and safe)*

- Can help block out environmental stimulus

◊ **Promote Comfort:**

- Reposition for comfort
- Provide pain relief as needed before bedtime
- Adjust bed linens, temperature, and devices (e.g., ventilators, IVs)

◊ **Promote a Normal Sleep-Wake Cycle:**

- Open blinds during the day to promote natural light exposure
- Avoid unnecessary naps during the day if interfering with nighttime sleep

◊ **Limit Caffeine and Stimulating Medications at Night**

- Administer sleep aids or sedatives **only if prescribed and appropriate**

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◊ **Provide Emotional Support**

- Reduce anxiety and stress by offering reassurance and a calm environment.

⇨ Non-Pharmacological Strategies for Improving sleep insomnia:

- Receiving at least 20 minutes of Natural Sunlight each day in the morning.
- Quiet sleep environment make sure bedroom is dark.

⇨ Avoids:

- Exercise immediate before bed.
- Avoid Caffeine, Nicotine, and alcohol with 4-6 hrs before bed.
- Avoid going to bed hungry or eating heavy meal before
- Relaxing reading before bed is helpful for Stimulating sleep but should occur in a-different Settler, not in bed.

➢ **Post-mortem Care:**

- is an important aspect of Nursing Care that must be conducted with respect the appropriate Nursing intervention.
- Clean the Body
- Notify the organ and Tissue donation organization.
- Allow the family to be present.
- Removing all Medical equipment.

⇨ The Nurse Should Follow These, In Case of post-mortem Care.

- Maintain Stander or isolation Precautions in place at The Time of death.
- Gentile Close the client eyes.
- Remove tube and dressing.
- Straighten and wash the body and change the linen.

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Classification: Internal Use

- Place a-pad under the perineum to absorb any stool.
- Place a pillow under the head.
- Remove equipment.
- **Denture** left in place don't remove it.

➢ **Interventions to Prevent wound dehiscence related to Complication of poor wound healing:**

- Administer docusate Po daily stools softener for constipation.

◊ **Support the Incision When Coughing or Moving:**

- Use a **pillow or abdominal binder** to **splint the incision** during coughing, deep breathing, or repositioning.

◊ **2. Monitor for Signs of Infection**

- Redness, swelling, warmth, drainage, or fever — early treatment prevents wound breakdown.

◊ **Maintain Good Nutrition & Hydration**

- Encourage **high-protein**, **high-vitamin (especially vitamin C)**, and **zinc-rich** foods.
- May need nutritional supplements if ordered.

◊ **Avoid Excessive Straining or Pressure**

- Prevent constipation with fluids, fiber, or stool softeners (straining increases abdominal pressure).
- Avoid heavy lifting or sudden movements post-op.

◊ **Keep the Wound Clean and Dry**

- Perform dressing changes using **aseptic technique**.
- Monitor drainage devices (e.g., JP drains) as needed.

◊ **Manage Blood Glucose**

- **Tight glycemic control** in diabetic patients supports healing.

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Classification: Internal Use

➢ Palliative Care:

- The palliative care team is an **interdisciplinary team** that can include a physician, physician assistant, nurse practitioner, registered nurse, social worker, and **chaplain** as well as other disciplines depending on the population served.

⇨ Specialized medical care that focuses on:

- providing relief from pain and other symptoms of a **serious illness.**
- It also can help you **cope with side effects** from medical treatments.
- **The availability of palliative care** does not depend on whether your condition can be cured it support for people living with **chronic conditions** or **serious illness.**

⇨ Interdisciplinary team

⇨ **End of life:**

- The goal of that phase is providing **Comfort and quality of life.**

⇨ Complication of **End of life:**

- Anorexia the Nurse can implement strategies to stimulate appetite as assessing the need for analgesia, antiemetic as ondansetron also Stimulate appetite.
- Provide opportunities for meals with Friends and family.
- Provide oral Care frequently.

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4-Infection Control-SAFETY

➢ Types of Infection Transmission:

- Contact Transmission.
- Droplet Transmission.
- Airborne Transmission.

◊ Contact Disease:

- **Spread** occurs through direct bodily **contact with an infected person**, transferring the disease-causing microbe.
- Can also spread **indirectly via contaminated personal items** (like towels, utensils, clothing) or through contact with surfaces or objects in the infected person's environment.

◊ **Examples:**

⇨ **1-Multidrug-resistant organism:**

- **Bacteria** that become resistant to **certain antibiotics** and theses **antibiotics** can no longer be used to control or **kill the bacteria.**

◊ **Two Common Types:**

⇨ **MRSA** (Methicillin-Resistant Staphylococcus aureus):

- A type of **Staphylococcus aureus bacteria** that has become **resistant** to **methicillin** and other common antibiotics.
- How does it cause infection?
    - It can live on the **skin** or in the **nose** of healthy individuals without causing harm**. When it enters the body** through **cuts**, **wounds**, or **medical devices**, it can cause serious infections.

◊ What infections does it cause?

- **Skin and soft tissue infections** (e.g., boils, abscesses)
- **Pneumonia** (lung infection)
- **Bloodstream infections** (sepsis), which can be life-threatening

◊ How is it transmitted?

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- **Direct contact** with an infected wound or skin
- **Indirect contact** through contaminated surfaces, medical equipment, or hands of healthcare workers.

⇨ Risk factors For MRSA Infection:

- **Recent Hospitalization** (Nosocomial Infection)
- Young Children and Elderly
- Long Stay in Hospitals or ICU
- Indwelling Catheters
- Advanced Care and Medical Procedure
- Immunosuppressed Individuals
- Hemodialysis Patients
- Antibiotic Use.

⇨ **VRE (Vancomycin-Resistant Enterococci):**

◊ What is it?

- **A type of Enterococcus bacteria** that is resistant to vancomycin, an antibiotic used to treat serious infections.

◊ Where does it live?

- Normally found in the **human intestines** and the female genital tract without causing illness.

◊ How does it cause infection?

- When it **becomes resistant** and enters the bloodstream or urinary tract, it can cause **serious infections**.

◊ What infections does it cause?

- Urinary tract infections (UTIs)
- Bloodstream infections (sepsis)
- Wound infections

◊ How is it transmitted?

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- **Usually spreads** in healthcare settings (hospitals or nursing homes)
- **Direct contact** with infected individuals or indirect contact through contaminated surfaces or healthcare workers' hands

◊ **2-Clostridium difficile:**

- It's a **bacterium** that causes **watery diarrhea**, especially after someone takes **antibiotics for a long time**.

◊ How does it spread?

- From **poop to mouth** (fecal-oral route)
- By **touching dirty hands**, **dirty toilets**, or **contaminated surfaces**
- **Spores** of **C. diff** live for a long time on things like bed rails, door handles, and medical tools.

◊ Who's at risk:

- People who took antibiotics recently
- Hospital patients
- Elderly people
- Weak immune system

⇨ Precaution:

- **Hand hygiene with Soap and water.**
- Put the patient in a private room or Semiprivate room with **another Client Same infection**
- Keep equipment near the Client.
- Wear a **gown** when direct Care and **gloves.**
- **No Surgical musk** till it becomes Droplet and spread.
- Disinfecting contaminated surfaces.
- Place sign on outside door.

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➢ Droplet precautions:

- Necessary when a patient **infected with a pathogen**, such as influenza, is within **three to six feet of the patient.** Infections are **transmittable through** air droplets by **coughing, sneezing, talking**, and close contact with an infected patient's breathing.

◊ Common diseases for droplets Precautions:

- **Pertussis, influenza, Meningitis, Pneumonia**
- influenza type B
- Diphtheria
- Mumps.
- Group A Streptococcus
- **Note:**
- All these recommended **uses surgical mask** but in case you will contact fluid as (Wound Care -Suction) so you must wear **Gloves, gown** and **Face shield**.

⇨ precautions of Droplet Precautions:

- **Wear a surgical mask** within 3 feet of the patient.
- Place the patient in a private room or with someone infected by the same illness.
- **Wear eye** protection if needed.
- **Perform hand hygiene** before and after patient contact.
- Limit patient transport and ensure they wear a mask if transported.
- Disinfect contaminated surfaces regularly.
- In case Client **outside the room**, he should wear a musk. In case **Staff inside the room**, they should wear a mask.

➢ Air born disease.

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- **Airborne precautions** are required for infections that spread through aerosols (tiny particles) that can **remain in the air for extended** periods. These infections often require specialized isolation rooms and equipment to prevent transmission.

◊ Example:

- **Measles, Rubella, Tuberculosis, Varicella (chicken pox).**
- Herpes Zoster.

◊ Note

- **Chickenpox** is no longer **Contagious** after that lesion have Crusted and dry so, if we have in choice pertussis or Chicken Pox, we will choose pertussis.

◊ Precaution for Airborne:

- **Negative** Pressure and Private room
- **In case of routine** care you need only wear (**Gloves and N95**).
- Put surgical musk to the client during transport outside room.
- in Case you will **contact open wound**, **suction** you should wear (gloves, disposable gown, goggles, face Shield)
- **Visitors are allowed to** enter the room from the first time but Should Wear N95.

➢ **Ebola:**

- **Ebola** is a severe **viral hemorrhagic fever** caused by the Ebola virus, which is highly contagious and often **fatal if not treated promptly**. It is primarily transmitted through **direct contact with bodily fluids** (blood, vomiting, sweat, urine, saliva, and semen) of an infected person.
- Extremely contagious viral disease a **high mortality.**

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◊ Transmission:

- **Direct contact** with infected bodily fluids, such as blood, vomiting, or feces.
- **Exposure to contaminated surfaces** or materials (e.g., needles, hospital equipment).
- **Human-to-human transmission**: Spread through close contact with an infected person, especially during the symptomatic phase.
- Bats and primates are also considered natural hosts.

◊ Nursing Management:

- **Isolation:** Place the client in strict isolation to prevent the spread of the virus.
- **Use of personal protective equipment (PPE):** Wear full PPE, including gloves, masks, gowns, and face shields when caring for the patient.
- **Hydration and supportive care**: Ebola treatment primarily focuses on supportive care, such as fluid replacement and electrolyte balance.
- **Monitor for bleeding** and other complications.
- Strict hand hygiene: Use soap and water or alcohol-based sanitizers for hand washing.
- **Follow standard precautions** and contact precautions.

◊ Standard Precautions:

- These are basic **infection prevention** steps used with all patients, regardless of their diagnosis. They include:
- Hand hygiene (washing hands properly).
- Using gloves, masks, and protective gear when needed.
- Safe handling and disposal of sharp objects or waste.
- Cleaning and disinfecting surfaces and equipment

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➢ Needle stick injury:

- **In case of a needle-stick injury,** it's essential for the nurse to follow proper procedures to reduce the risk of infection and ensure immediate care.
- This is a critical situation, **as needle-stick injuries** can expose healthcare workers to bloodborne pathogens such as **HIV, Hepatitis B, or Hepatitis C**.

◊ When a nurse (or any healthcare worker) is **exposed to HIV through a needle-stick injury** or other bloodborne pathogen exposure:

- **Post-Exposure Prophylaxis (PEP)** with **antiretroviral therapy** is often recommended. However, it's important to understand that **antiretroviral therapy (ART)** doesn't cure HIV or kill the virus, but it can prevent the virus from taking hold in the body if started early.

⇨ Steps After Needle Stick Injury:

- **Wash the injury** site with soap and water immediately.
- Report the injury and complete an incident report.
- **Assess the patient's source** for infection status (if known).
- Get tested for bloodborne pathogens.
- Receive **Post-Exposure Prophylaxis** if needed (especially for HIV, Hepatitis B).
- **Follow up with healthcare providers** for further monitoring.
- Screen the Client with **Hepatic C virus.**
- Do not recap the needle.

◊ What is Antiretroviral Therapy (ART) for Post-Exposure Prophylaxis (PEP)?

- **Antiretroviral drugs** are used to prevent HIV from establishing infection in the body after exposure. The medications do not kill the

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virus immediately **but can prevent the virus from replicating if taken within 72 hours** of exposure, ideally as soon as possible after the exposure.

⇨ **Human Immunodeficiency Viruses (HIV):**

- **HIV is a virus** that attacks the immune system, **particularly the CD4.** These cells are crucial for a healthy immune system.
- **Over time, HIV** can weaken the immune system, making it difficult for the body to fight infections and diseases.
- **If left untreated,** HIV can lead to **acquired immunodeficiency syndrome (AIDS),** which is the final stage of HIV infection.
- Not everyone with HIV develops AIDS, though.

⇨ Transmitted:

- Through Contact with Body Fluids including **Semen, Vaginal, Secretions, Blood**, and Breast Milk.
- Not transmitted through, **urine, saliva, sweat or emesis**

⇨ Precaution for HIV

- **Gowns, gloves, Face shield** are necessary if the produce has a high risk of contact with infected body fluid example**, peripheral IV insertion, and vaginal delivery**. **Not necessary** for every Client encounter.

➢ **For Donning and Doffing:**

- When it **comes to donning** (putting on) and **doffing** (taking off) personal protective equipment (PPE), it is **crucial for healthcare workers** to follow specific procedures to prevent contamination and ensure safety, especially in the case of infectious diseases.

⇨ Donning (Putting on personal protective equipment (PPE):

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- Gown.
- Mask.
- Goggles (Face shield)
- Gloves.

⇨ For Doffing:

- Gloves.
- Goggles (Face shield)
- Gown.
- Mask.
- in Case of Doffing:
- Will remove The Musk after exit the room.

◊ Key Points for NCLEX:

- **Hand hygiene** is the first and last step in donning and doffing PPE.
- **Always avoid touching** the front of any PPE during the doffing process.
- **If the PPE** is a single use, dispose of it properly. If it is reusable, ensure it is cleaned and disinfected before reused.

⇨ Nursing priority when implemented a chemical contamination:

- Donning PPE to protect the Nurse **this the priority.**
- **Restricting** other Clients or staff from the victims to protect non-affected individuals.
- **Decontaminating the Client** clothes outside the facility before initiating treatment if the chemical is not removed, it will continue to Cause **respiratory distress** from contaminated clothes.
- Assess and providing treatment of symptoms.

➢ Surgical Site Infection (SSI):

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- Surgical Site Infection (SSI) is **an infection that occurs** in the part of the body where **surgery took place**. It is a type of healthcare-associated infection (HAI).

◊ SSIs are **caused by:**

- **bacteria** that enter through surgical incisions. They can be treated with **antibiotics** but may require additional medical care.
- Preventive measures can help reduce the risk of SSI.
- Develop **within days to weeks** of a surgical procedure.

⇨ Clinical manifestations

- Fever, Purulent drainage, erythema

⇨ If Surgical Site Infection (SSI) is suspected the Nurse Should:

- Administer **Broad-Spectrum IV Antibiotic** treats a wide range of bacterial infections like **Azithromycin.**
- In **case diabetic patient**s obtain a prescription **insulin** because hyperglycemia delays wound healing and can facilitate bacterial growth.
- Prepare the Client for urgent surgical **debridement.**

➢ **Routine Catheter Care to prevent UTI:**

- **Hand** hygiene
- **Clean the Perineal** area with soap and water routinely.
- **Keep the** Catheter bag below the bladder.
- Keep The Catheter and tube Free of Kinks.
- Use a sterile technique when collect in urine Specimen.
- No need for **routine irrigation**, it will not prevent infection.
- **No need for routine antiseptic cleaning** will prevent infection and may develop the development of **drug resistance bacteria**.

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➢ **Necessary Precaution to prevent infection transmission when drawing a central venous catheter (CVC):**

- **Perform** Hand hygiene and Disposable gloves
- Scrub the Catheter hub with antiseptic prior to use.
- Place the specimen in **biohazard bag**.
- Immediate transport to the Lab

⇨ Note:

- When drawing blood From CVC the nurse should **discard the First Blood** to prevent Inaccurate **Lab, but this does not prevent infection.**
- It's important to flush the line after Collection but also this **will not prevent infection.**

➢ **In Case of the client trying to Pull the Catheter:**

- First Action the Nurse Should Take:
- The first thing the nurse should do is to **immediately intervene** and prevent the client from pulling the **catheter out** and start **less restrictive** methods such as:
    - **apply a gauze Wrap** around **the IV site.**
    - In Case **this way not affective** we can use other like **apply hand mitt, restrain the arm**.
    - So, before **chemical restrain** should try the first less restrictive method.

⇨ When caring for a client in restraints the nurse should implant this intervention:

- **Provide skin** Care and range of motion exercises.
- **Assess skin** integrity and use gauze under restraints.

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- Release restraint at regular intervals and **assess behavior**.
- Restrain Straps should be attached to areas move with the bed.
- Put the Client on side lying or semi fowler position **Never Supine**
- Restrain straps should be tied in **a quick release knot Never Square knot.**

⇨ Examples of physical restraint:

- **Belts restrain** and **soft ankle restrain** It's Consider **physical restrain.**
- **Raising all 4 side rails** is considered a form of restraint and may increase the risk of falls, especially in confused or agitated clients. **Clients may attempt** to climb over the rails, leading to greater injury if they fall from a height.

◊ Best Practice:

- **Raise only 2 or 3 side rails** (typically upper side rails) to assist with mobility and promote safety.
- **Avoid raising all 4 side rails** unless ordered and justified (e.g., during transport or if the patient is unconscious).

⇨ Nonphysical restrain:

- **Mummies restrain** involve swaddling infants for temporary immobilization during routine procedure t**his not physical restrain.**
- **Full padded side rails** are placed in the raised position for client seizure this **not physical restrain** just protect client from injury.

⇨ Note:

- Regarding the Client who is **confused and high risk for Fall Placing the** Client's bed at the **lowest level is appropriate**, but raising all sides is considered a form of restraint.

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- **Regarding the Client** who is **confused** and has **incontinent urine** It's not appropriate to **insert indwelling Catheter** because it risks for infection the nurse **can reduce Urinary urgency and incontinence** by offering Client toilet with hourly.

➢ **In Case will give medication to the Client which following Client data acceptable?**

- Date of Birth.
- First and Last name.
- Medical record number (MRN).

⇨ In Case of a client schedule for surgery and Staff took Vital Signs:

- If there is temperature and cough indicate sign of Infection should inform HCP because has risk for postoperative **pneumonia.**

➢ **The highest priority intervention for client platelets counts less than 150,000:**

- **Avoid IM** injections and minimize venipuncture because of the risk of bleeding.

⇨ Bleeding Precautions Include:

- **Avoid invasive procedures** (e.g., injections, rectal temps, catheter insertions)
- Use soft toothbrush, no flossing.
- Avoid aspirin or NSAIDs
- Monitor for signs of bleeding: bruising, petechiae, bleeding gums, blood in stool/urine
- **Fall precautions** – to prevent trauma
- Use electric razors, not blades

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- Apply pressure to puncture sites for longer time

⇨ Medications as Anti-Coagulant, Anti platelet, NSAIDS and Herbal:

- Have the risk to Increase **Bleeding so** should be discontinued at least 5-7 days Before Surgery.

⇨ Clopidogrel (Plavix):

- **Antiplatelet medication** should be discontinued **5-7 day** before Surgery to decrease risk for Bleeding.
- In Case patient said I didn't take This today or yesterday that he has risk for Bleeding.

⇨ Nursing responsibilities Prior to Surgery:

- **Encourage** the client to avoid prior surgery.
- Ensure that the Client NPO.
- Place signed inform Consent in Clients Chart.
- 20 gauge accepted but 18 gauge is Perfected.
- Make sure that the Correct Surgery site is marked by surgery.

◊ **What is Anaphylactic Latex Reaction?**

- **Anaphylaxis is a life-threatening allergic reaction** that can occur when a client is **exposed to latex** (commonly found in gloves, catheters, IV tubing, **Banana, avocados** - Strawberries–kiwifruit high risk potential for cross reaction allergy development.

⇨ Signs of Latex-Induced Anaphylaxis:

- Difficulty breathing / bronchospasm
- Wheezing, coughing
- Swelling of the face, lips, or throat
- Hypotension (low BP), tachycardia
- Urticaria (hives), itching

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- Nausea, vomiting, dizziness
- Loss of consciousness (in severe cases)

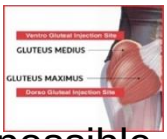
⇨ Immediate Nursing Actions for Anaphylactic Reaction:

- STOP exposure to latex immediately (remove gloves, tubing, etc.)
- Call Rapid Response / Code Team.
- Administer Epinephrine (IM) first-line treatment
- Provide oxygen
- Start IV fluids (to treat hypotension)
- Administer antihistamines (e.g., diphenhydramine) and corticosteroids
- Monitor airway closely prepares for intubation if needed.

◊ **The Most Important Strategy to prevent accidental drug overdoses in children:**

- You must teach Parents and car giver to keep medication **Out of sight** in a locked drawers or Cabinet.

➢ **Drug should be report as Practice error:**



- **Warfarin is generally contraindicated** in Pregnancy. If possible, warfarin therapy should be avoided during pregnancy. If warfarin therapy is essential, it should be avoided at least during the first trimester which can lead to fetal malformation.
- **For immunizations for Children** age < month 7 the site should be **anterolateral thigh (vastus lateral) is** the preferred IM site **for neonates and infants.**
    - **Ventrogluteal** this site involves the **gluteus Medius** is the safest injection site for **adults.**

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- In Case of client has history of **anaphylaxis from any medication** should be determine prior to administration.

➢ **Seizure Precautions:**

⇨ Before a Seizure:

- **Pad side** rails of the bed.
- Lower the bed to its lowest position.
- Keep suction equipment and oxygen at the bedside.
- Ensure IV access is in place.
- Remove any hazards from the environment.
- Educate client and family about the seizure (if an aura is present).
- **Raising only** the upper side rails on bed

◊ During a Seizure:

- Stay with the client.
- Do NOT restrain the client.
- Do NOT place anything in the mouth.
- Turn the client to their side (to maintain airway and prevent aspiration).
- Loosen restrictive clothing.
- Time the seizure.
- Provide oxygen if necessary.
- Ensure a safe environment (remove sharp objects).

➢ **in Case there is client brought in EMERGENCY and no identification and ER recommended urgent procedure:**

- We Can transport the client to the OR room under **implied consent** this

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◊ implied Consent only during:

- Emergency.
- Treat is required to protect client health.

⇨ When admitting unconscious clients from ER the Nurse Should Check:

- **Check emergency** medical identification.
- **Remove the client** jewelry and put in a secure Lock.
- Remove the Client lenses.

➢ **In Case of Client not adhering with Self Care at home the nurse just assesses:**

- **Client's Knowledge** as lack of experience and Cognitive abilities is a priority.
- Also, Skills and supplies (Financial barriers)

⇨ But what is the Priority.

- The nurse must **assess for adequate knowledge and** ability to perform Self Care activities once the barriers have been identified; the nurse can plan and create with a client to meet health care needs.

➢ **How to Prevent Falls in the elderly Client?**

- **Exercise** Program as (gait Balance, Strength training)
- Good room lighting
- Handrails in Stair
- In the home use grab bars and nonskid bathmats.
- Staff hourly round.
- Wear electronic fall alert device.

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- **Non-Slip Rubber** Soled shoes are recommended not **smooth shoes.**

⇨ Factors place a Client Increase risk for fall:

- **A positive orthostatic blood pressure** vital signs as drop in 20 mmhg is **systolic blood pressure** and drop 10 mmhg in **diastolic** blood pressure.
- **Osteoarthritis.**
- **Takes carbidopa and levodopa** are anti-Parkinson medications. may make you **drowsy or may cause you to suddenly fall asleep** during your regular daily activities
- Use ambulatory aid.
- **Age 65-73 years.**

⇨ What about Client Newly returning to the unit and asking for help from Nurse to be after Knee Surgery the chair?

- The Nurse should verify the client activity prescription first.

⇨ How can assist a client in case you see him fall on the floor:

- Step slightly behind Client with Feet apart
- Move one foot back, extend Front leg, let Client slide.
- Lower Client to the floor.

➢ **Meniere disease:**

- An inner **ear problem** that can cause **vertigo**, and hearing loss most of the time that's why this **patient risks fall.**
- Meniere's disease affects **only one ear.**
- Result from excess Fluid accumulation in **inner ear**

⇨ Precaution:

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Classification: Internal Use

- The bed should be placed in the **Lowest position** with two of side rails raised **Never all Side rails** because it will Consider **physical restraint.**
- Dimes the light and close the T.V.

➢ **Safety Precautions for home oxygen use include:**

- Keep O2 at least **from 5 to 10 Fit** away from open flames and heat source.
- Maintain the prescribed liter flow of oxygen.
- Avoid Blanket on the bed.
- Place signs on home enter these ways to notify others and prevent smoking.
- Keep a Working Fire extinguisher in the home.

⇨ Fire Extinguisher:

- **P**- Pull the Pin
- **A-**Aim at base of fire
- **S-** Squeeze the lever.
- **S**- Sweep side to side
- **No Shake Before Use**

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5-Infectious diseases

Classification: Internal Use

➢ Tuberculosis:

- Caused by bacteria **Mycobacterium tuberculosis** and it most often affects the lungs.
- TB is spread through **the air** when people with **lung TB** cough, sneeze, or spit.

⇨ Factors increase risk for T.B:

- Work In health care.
- Daily take **Immunosuppressant medication such** as **Methotrexate** and **cyclosporine**.
- **Clients with** HIV, and cancer clients who are **Immunosuppression which** refers to immune system is not functioning properly.(**Immunosuppressant** are drugs that prevent the immune system from attacking healthy cells and tissues).
- Homeless shelter (overcrowded).

⇨ PPD (purified protein derivative):

- **A purified protein** used in the **Mantoux test** for a test that determines if you have **tuberculosis.**
- If the skin is **positive** so **chest x ray** should be performed to evaluate **active T.B**
- Classification of TB skin test reactions:
- Induration of **5 or more millimeters** is considered positive in those who are **immunosuppressed,** HIV, and Recent contacts of people with infectious TB disease.
- **Induration of 10 or more millimeters** is considered positive as a health care employs, Children younger than 5 years of age and People who misuse drugs and alcohol.

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- **Induration of 10 or more millimeters** is considered positive healthy (low risk) or People with no known risk factors for TB.
- Latent T.B infection:
- **Latent TB** means the client has been infected with **Mycobacterium tuberculosis**, but the bacteria are inactive (dormant). The person is NOT contagious and has no symptoms**.**
- Defined by **positive skin tests** and **negative X rays**, clients **with latent T.B** do not transmit infection to others therefore use only **stander precaution.**

⇨ Intervention for client with T.B:

- **Perform** another X ray.
- Initiate long term antibiotics.
- Collect **three** separate cultures.
- **Obtained blood specimen** to measure baseline liver function
- **Corticosteroids are NOT** routinely indicated for clients with active TB because they suppress the immune system, which can:
    - Worsen active TB, or Trigger the conversion of **latent TB into active disease**

⇨ Treatment for client with T.B:

- **Isoniazid** – Rifampin for several months.
- **Isoniazid** reduces the effectiveness of oral **contraceptive pills.**

➢ **Hepatitis A:**

- Hepatitis A is an **inflammation of the liver** that can cause mild to severe illness.

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- **The hepatitis A virus** is transmitted through **ingestion of contaminated food** and **water** or through direct contact with an infectious person.
- The risk of hepatitis (A) infection:
- Associated with a lack of **safe water** and **poor sanitation** and hygiene such as **contaminated and dirty hands**.

⇨ Sign and symptoms:

- **Initially**, Nausea, vomiting, anorexia, fever, and right upper quadrant pain.
- **After a few days** there is dark urine, pale stool, followed by jaundice and elevated liver function test.

⇨ Precautions:

- **Stander precaution**, hand hygiene is the most important intervention especially after toilet.
- A safe and effective vaccine is available to **prevent hepatitis A.**

➢ **Herpes zoster (shingles):**

- **Shingles (herpes zoster)** is a viral infection that causes an outbreak of a **painful rash** or **blisters** on the skin.
- It's caused by:
  - the **varicella-zoster virus**, which is the same virus that **causes chickenpox**. So, the priority ask client if had **chicken pox vaccination** because some people who are **vaccinated against chickenpox** get shingles (herpes zoster) years later.
- The rash most often appears as a band of rashes or blisters in one area of your body the **affected area should be covered.**
- Risk factor:

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- Advance age, immunosuppressive medication as **methotrexate or steroids.**
- Manifestations:
- Fever, tingling sensation, burning pain in the affected side.
- Rash begins with small erythematous macules.
- Intervention:
- Airborne precautions.
- Administer antiviral medication as **an Acyclovir** and request for **ophthalmology.**
- Administer analgesic medication.
- Discharge teaching:
- **Avoid contact** with clients who are i**mmunosuppressed (**reduced ability to fight infections and other diseases. This may be caused by certain diseases or conditions, **such as AIDS**, cancer, **diabetes, malnutrition,)** or never get vaccination or infected chicken pox because the virus can transmit through contact.

- **Report one side facial weakness** (Bell's palsy). Because **Herpes Zoster** can affect the facial nerve, causing **Bell's Palsy**, and it may also indicate **shingles involving the eye** (herpes zoster ophthalmic) which can lead to **vision loss**. So, it's a priority to report it immediately.
- Wash hands before and after touching open lesion.
- **Pain is triggered** by washing the affected area.
- Should allow the crust to fall off natural.

➢ **Impetigo:**

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Classification: Internal Use

- A common and **highly contagious skin** infection that mainly affects infants and young children.
- Manifestations:
- It usually appears as **reddish sores on the face**, especially around the nose and mouth and on the hands and feet. Over about a week, the sores burst and develop **honey-colored crusts**.
- Fluid-filled blisters are **often on the trunks**, arms and legs of infants and children younger than 2 years.
- Oozing lesion with yellow brown crusts.
- Cause:
- It is caused by **Staphylococcus aureus or Streptococcus pyogenes** bacteria.
- Treatment:
- **Topical antibiotics** (e.g., Mupirocin).
- Oral antibiotics in severe cases (cephalexin).
- Prevention:
- Regular handwashing.
- Avoiding sharing personal items.
- Keeping cuts and wounds covered to prevent infection.

➢ **Acute rheumatic fever:**

- **An inflammatory disease** that can develop when **strep throat** or **scarlet fever** isn't properly treated.
- **Rheumatic fever** symptoms usually start about 2 to 4 weeks after a strep throat infection.
- **Strep throat and scarlet fever** are caused by an infection with streptococcus bacteria.

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- **Rheumatic fever** most often affects children ages 5 to 15. But younger children and adults can get it too.
- There is **no strawberry tongue.**

⇨ Complication:

- **Rheumatic heart disease** condition where the heart valves have been permanently damaged by rheumatic fever.
- **The heart valve damage** may start shortly after untreated or undertreated streptococcal infection, such as strep throat or scarlet fever. **Heart valve replacement** may be necessary.

⇨ Finding that concern:

- Sudden onset of joint pain, sore throat, fever, and erythematous rash.
- **Grating sound** with each cardiac cycle as **friction rub**

⇨ Intervention:

- **Penicillin** is the first line for groups with streptococcus infection and ARF.
- **Long term** antibiotic therapy.
- Routine cardiology appointment.
- Client remains at risk for **reinfection** after initial recovery of streptococcus.
- **Penicillin** is a class of antibiotic medications. Penicillin treats bacterial infections like strep throat, ear infections and urinary tract infections. They work by **attaching to and damaging the cell walls** of bacteria. Types of penicillin include **penicillin V, penicillin G**, and amoxicillin
- Teaching for mechanical valve replacement:
- Notify HCP if there are any flu symptoms.

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- Take **prophylactic antibiotic** before any dental procedure because risk for **Infective endocarditis (IE) (**also called bacterial endocarditis) is an infection caused by **bacteria that enter** the bloodstream and settle in the heart lining, a heart valve, or a blood vessel.
- **Lifelong anticoagulation** therapy because it increased risk for thrombi formation.

➢ **Lyme disease:**

- A **bacterial infection** transmitted to humans through the **bite of an infected deer tick** (black-legged tick).

⇨ Manifestations:

- **Fever**
- **Joint pain**
- **Erythematous rash**, often described as a **"bull's-eye" appearance** (a red circular rash with central clearing) – a hallmark sign.
- **No strawberry tongue** (important to differentiate from scarlet fever).
- Treatment:
- **Antibiotics**, depending on age and severity:
- **Amoxicillin**

⇨ Prevention of Tick Bites:

- Apply **insect repellent** (e.g., DEET) when in wooded or grassy areas.
- Avoid walking through **tall grass** or brush.
- Wear **long-sleeved shirts and long pants**; tuck pants into socks.
- After outdoor activity, **check the skin and scalp** for ticks.

⇨ Important: What NOT to do with a tick:

- Do **not** apply **petroleum jelly** or try to burn it off.
- **Correct method** of removal:

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- Use **fine-tipped tweezers**.
- Grasp the tick **close to the skin** (at the head or mouth).
- Pull **straight out gently** and steadily without twisting.
- Clean the area with antiseptic.
- NCLEX Tips:
- The **bull's-eye rash** is often the **first clue** in NCLEX questions.
- **Early antibiotic treatment** prevents complications like **neurologic or cardiac involvement**.
- Tick bites are often **painless**, so **assessment and prevention education** are key.

➢ **Acute kawasaki disease:**

- An **acute febrile illness** (high fever condition) that mostly affects **children under 5 years old**.
- More common in **boys** than girls.
- **Cause: Unknown** (likely autoimmune or infectious trigger).

⇨ Complications:

- **Inflammation of the heart and blood vessels**, especially the **coronary arteries**.
- Can lead to:
- **Coronary artery dilation**
- **Aneurysms**
- **Decreased cardiac function** → May result in heart failure or **coronary artery rupture**, which is life-threatening.

⇨ Key Manifestations:

- **Strawberry tongue** (red, bumpy tongue)
- **Erythematous rash** (widespread red rash on the body)

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- Prolonged high fever (lasting >5 days)
- Red eyes (conjunctivitis) without discharge
- Swollen hands and feet
- Peeling skin, especially on the fingers and toes
- Swollen lymph nodes (usually in the neck)
- Treatment:
- **IVIG (Intravenous Immunoglobulin)**
- Reduces inflammation
- Decreases risk of coronary artery complications
- **Aspirin**
- Used in **high doses during the acute phase** to reduce inflammation and fever
- Continued in **low doses** to prevent clot formation due to coronary involvement
- NCLEX Tips:
- The presence of **strawberry tongue + fever + rash in a child <5 years** → Think **Kawasaki Disease**.
- Major goal: **Prevent coronary artery aneurysms**.
- Monitor for **signs of heart failure** (e.g., tachycardia, gallop rhythm, decreased urine output).
- **Avoid live vaccines (like MMR and varicella) for 11 months** after IVIG administration because it interferes with the immune response.

➢ **Histoplasmosis:**

- An infection caused **by breathing in spores of a fungus** often found in bird and bat droppings.

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- **People usually get it** from breathing in these spores when they become airborne during demolition or cleanup projects.
- Most risk:
- People with **AIDS/HIV**
- **Leukemia** patients
- People on **chemotherapy**
- People on **long-term corticosteroids**
- **Organ transplant recipients.**
- Possible Symptoms (especially in immunocompromised):
- Fever, cough, chest pain
- Fatigue, weight loss
- Can lead to disseminated histoplasmosis, which affects multiple organs and can be life-threatening
- Treatment:
- Mild cases: Often self-limiting in healthy individuals
- Severe or disseminated cases:
- Antifungal medications like Itraconazole or Amphotericin B
- NCLEX Key Points:
- Always associate bat/bird droppings + immunosuppressed client + respiratory symptoms with Histoplasmosis.
- If a client is undergoing chemotherapy or has AIDS and develops respiratory distress, histoplasmosis could be a life-threatening complication.
- Early antifungal treatment can be lifesaving in immunocompromised patients.

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Classification: Internal Use

➢ **Sexually transmitted infection:**

- All sexual activity risk for sexual transmitted infection as **syphilis**, **Herpes simplex virus**, **and HIV.**
- Risk factor for increasing the risk for STI:
- Multiple sexual partners.
- Previous STI.
- Lack barrier of contraceptive use (condom
- Finding that are most concern for STI:
- **Diffuse rash** that begins on trunk and spreads to both hands and feet.
- Painless genital sores (chancers).
- Swollen lymph nodes in the groin area.

◊ **Let's talk about the first important STI:**

⇨ **1-Herpes Simplex Virus:**

- A common infection that can cause painful **blisters or ulcers**. It primarily spreads by **skin-to-skin contact. It** is treatable but **not curable.**
- Sign and symptoms:
- **genital sore**, lesion, **viral pathogen (**viral infections in humans can cause various outcomes, from mild to severe, such as the common cold, flu, chickenpox, cold sores, fever.
- Treatment:
- Though genital herpes is not curable, it can be managed by antiviral medication, such **as acyclovir**.
- Genital herpes:
- **Sexual transmitted infection** caused by herpes simplex virus is highly contagious. When the lesion is **active** do not touch the lesion

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then rubbing another part it can spread so **gloves** should be worn when apply topical anti-viral.

- **Should keep it dry** and clean and do not apply bandage.
- During active lesion **avoid** sexual intercourse even with condom.

⇨ **2-Human Immunodeficiency Virus (HIV):**

- an infection that attacks the **body's immune system**, specifically the white blood cells called CD4 cells.
- **AIDS** is the late stage of HIV infection that occurs when the body's immune system is badly damaged because of the virus.
- In the U.S. most people with **HIV do not develop AIDS** because taking HIV medicine as prescribed stops the progression of the disease.
- Virus transmitted:
- **Through** contact with the infected body as vaginal secretion, blood, semen, breast milk.
- Protection is so important in case both partners have HIV so he should wear **latex synthetic condoms and** do not wear **lambskin condoms.**
- **Avoid** contact with cat feces, raw undercooked food, and raw fish.
- Not share personal hygiene.
- Manifestations:

- Initial phase of infection clients can be **asymptomatic.**
- Viral pathogen.
- Maculopapular rash.
- **Lymphadenopathy** (is a term that refers to the swelling of lymph nodes.).

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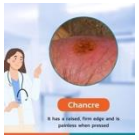
- Treatment for HIV (Human Immunodeficiency Virus):
- Currently, there is no cure for HIV, but it can be controlled with **antiretroviral therapy (ART).**
- **Available Treatments:** Antiretroviral Therapy (ART) Helps reduce the viral load (amount of HIV in the blood) to **undetectable levels.**

◊ **3-Syphilis:**

- A preventable and **curable bacterial** sexually transmitted infection (STI). If untreated, it can cause serious health issues.
- Many people with syphilis **do not have symptoms** or do not notice them.
- The disease starts as a **sore** that's often painless and typically appears on the **genitals**, **rectum**, or **mouth**.
- **Syphilis** spreads from person to person through direct contact with these sores.
- Transmitted through:
- Oral, vaginal, and anal sex, and through blood transfusion.
- Manifestations:



- Gentile sore painless (chances).
- Without treatment may develop fever, sore throat, headache, lymphadenopathy, macular rash.
- Primary:
- Painless genital ulcer chancers
- Secondary:
- Diffuse rash in palm and sore.
- Latent:
- Asymptomatic.

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Classification: Internal Use

- Tertiary:
- Dementia, cardiovascular, tumor, lesion.
- Intervention:
- Notify the public health department.
- Stander precaution.
- Perform pregnancy test.

◊ Why Perform a Pregnancy Test for a Patient with Syphilis?

- A pregnancy test may be performed for a pregnant woman who has syphilis or if a syphilis test is ordered for a woman who may be pregnant.
- Syphilis is a highly contagious sexually transmitted infection (STI) that can be passed from mother to child during pregnancy, known as congenital syphilis. **Congenital syphilis** can lead to miscarriage, stillbirth, or serious birth defects like neurological damage or organ damage for the baby. If a woman is pregnant and is diagnosed with syphilis**, immediate treatment is crucial to prevent these complications**.

◊ Pregnancy Test as Part of Routine Screening:

- **Pregnancy should be confirmed** before starting any treatment for syphilis, as certain medications (e.g., some forms of doxycycline) may be contraindicated in pregnancy. **Penicillin G** is the first-line treatment for syphilis in pregnancy and is considered safe, so confirming the pregnancy is essential to ensure the appropriate treatment plan.
- Treatment:
- **IM penicillin** is the most effective treatment so check for allergies.

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- **Antibiotics** like ceftriaxone are available for non-pregnant client with **penicillin allergies**
- Appropriate teaching:
- Inform recent sexual partner of the infection.
- Retest for syphilis rout every 6 months.
- Use barrier method as condom.
- Complication:
- Headache, myalgia, tachycardia, hyperventilation, and mild hypotension that occur within 1 to 2 hours and last 12 to 24 hours **after any effective therapy for syphilis** as being administered antibiotics
- **Trichomoniasis:**
- a common sexually transmitted infection.
- In women, **trichomoniasis** can cause a foul-smelling vaginal discharge, genital itching, and painful urination.
- **Men** who have trichomoniasis typically have no symptoms.
- **Pregnant women** who have trichomoniasis might be at higher risk of delivering their babies **prematurely.**

⇨ Manifestations:

- A large amount of a thin, often foul-smelling discharge from the vagina which might be clear, white, gray, yellow or green.
- Genital redness, burning and itching.
- Pain with urination or sex.
- Blood after course.

⇨ Treatment:

- Oral antibiotics, such as Metronidazole (Flagyl).
- Sexual partners should also be treated to prevent reinfection.

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⇨ Treatment:

- Metronidazole (Flagyl) or Tinidazole (oral antibiotics) are the first-line treatments

⇨ Complications:

- Increased risk of HIV transmission
- Pelvic inflammatory disease (PID) in women if untreated
- Preterm labor in pregnant women

⇨ Precautions:

- Standard precautions during examination and treatment
- Abstinence from sexual contact until treatment is completed for both partners.

➢ **Gonorrhea and chlamydia:**

- **Both are caused** by bacteria that can be transmitted during vaginal, oral, or anal sex without a barrier method.
- Both STIs

⇨ Manifestations:

- Bleeding after course.
- Urinary pain and frequency.
- Urethra discharge.

⇨ Complication of Gonorrhea:

- **Pelvic inflammatory disease** can cause infertility.
- Ectopic pregnancy
- Septic arthritis, Rash.

⇨ Intervention for client Pelvic inflammatory disease due to gonorrhea:

- Administer antibiotic and reevaluate within 48 – 72 hrs.
- Report infection to public health.

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- Instruct clients to notify recent sexual.
- Avoid douching intravaginal cleaning risk for infection.

⇨ Teaching:

- Highly transmissible, direct contact.
- The client is still infected even after course.
- Avoid sexual intercourse for seven days after antibiotic.

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5-Medication Administration

➢ 1-Transdermal Patch:

◊ Clonidine Patch:

- **Antihypertensive agent** it should be replace **every 7 days and** can be left in place during bath.

⇨ instructions for using it:

- **Wash hands before and after** applying and wash the area with soap and Water.
- Apply **clean, dry, hairless** area on **the upper arm or chest.**
- **Do not shave the area before applying** the Patch the skin should be free From **Cuts, Scrapes, and Scars. (to avoid skin irritation)**
- When removing the patch, **fold it in half with** sticky sides together.
- **Inform HCP** if experiencing side effect **dizziness** do not **remove without discussing**.

◊ Fentanyl:

- Administer **Transdermal Patch** for **Chronic pain**.
- **Patches** are replaced **every 72 hours,** and **the used one** must be removed before applying for a new one.
- **Used patches must be stored** and disposed of securely. They should be **folded in half with the sticky sides** together and then immediately **discarded in a sharps container or flushed down** the toilet, depending on facility policy."

⇨ Indications:

- Severe pain (e.g., cancer pain)
- Chronic pain requiring long-term opioid treatment
- Used via patch (transdermal), IV, lozenge, (oral transmucosal or injection)

⇨ Warnings:

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- **Respiratory depression** – monitor respiratory rate!
- **High risk of overdose**.

⇨ NCLEX Priorities:

- **Assess First:**
- **Respiratory rate (<12/min = hold and notify provider)**
- **Pain level before and after** administration
- Level of consciousness (sedation scale)
- BP and HR (may cause hypotension or bradycardia)

⇨ Patient Teaching:

- Avoid **alcohol and CNS depressants**
    - **Combining fentanyl** with **alcohol, benzodiazepines,** or **sleeping pills** may cause severe respiratory depression or even death.
- Keep patches away from children and pets
- Dispose of patch by **folding it and flushing**.
- Takes **several hours to reach full effect** when using the patch

⇨ Side Effects:

- Respiratory depression
- Nausea/vomiting
- Drowsiness/dizziness

➢ 2-Intradermal injection:

⇨ Purpose:

- Used **primarily for sensitivity tests** such as:
    - Tuberculosis (TB) screening

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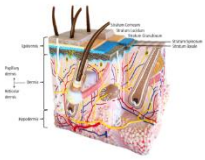
- Allergy tests
- Local anesthetic sensitivity

- Anatomy:
- **Medication** is injected into the dermis, which is the skin layer just beneath the epidermis (the outermost layer).
- Steps for Administration:
- **Clean the injection site with alcohol** and allow it to dry completely.
- Stretch the skin taut to stabilize the area.
- Insert the needle with the bevel up a**t a 5–15° angle, just** beneath the skin surface.
- Do NOT massage or apply a bandage to the site.
- Mark or document the site for follow-up assessment (especially for TB testing).
- Ensure proper technique:
  - Medication should always be administered at a 5–15° angle



➢ **3-Subcutaneous:**

- Medication is injected into the subcutaneous (fat) layer, just below the skin and above the muscle.

⇨ Needle Angle

- 45° angle: For thin clients (less fatty tissue).
- 90° angle: If **adequate subcutaneous tissue is present** or using a short needle (e.g., insulin syringe).

⇨ Common SubQ Medications

- Insulin
- Heparin
- Some Vaccines (e.g., MMR, Varicella)

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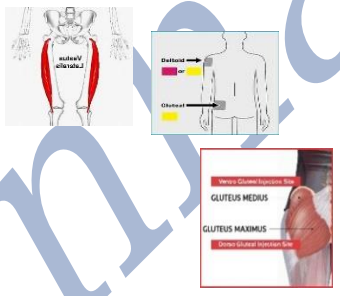
⇨ Key NCLEX Tips:

- Do NOT **aspirate SubQ** injections.
- Do NOT **massage after heparin or enoxaparin** to avoid bruising.
- Preferred injection sites:
  - Abdomen (most common)
  - Upper arm
  - Anterior thigh
  - Upper buttocks



➢ 4-Intramuscular (IM):

- Intramuscular injections are **delivered directly into the muscle,** which allows for faster absorption due to the rich blood supply.
- Important Note:
- Always use a **filter needle** (not the injection needle) when withdrawing medication from a **glass ampule**.
- This helps prevent aspiration or injection of glass particles.
- Common IM Injection Sites and Their Uses:
- **Deltoid Muscle**:
  - Commonly used for **IM vaccines** in **adults and children over 3 years old**. *Do not inject more than 1 mL into this site.*
- **Vastus Lateralis**:
  - This is the **preferred site for infants under 1 year old**.
- **Ventrogluteal Site**:
  - This is the **safest and preferred site** for **adults and children over 7** *months. Suitable for larger volumes, up to 3 mL in adults.*
- Z-Track Method for IM Injections:

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- **Pull** the skin laterally with your non-dominant hand (about 1 to 1.5 inches).
- Insert the needle at a **90-degree angle** into the muscle.
- **Inject the medication slowly** using your dominant hand.
- **Wait 10 seconds** after the injection is complete.
- **Withdraw the needle** and then release the skin.
- Apply **gentle pressure** at the injection site, but **do not massage**.

➢ 5-Administer OTIC Medication:

- **Refers OTIC medications** are drugs specifically formulated for application in the ears.
- Commonly used to treat conditions such as **acute otitis externa** and **acute otitis media.**
- Steps for Administering OTIC Medication (Ear Drops)
- Perform hand hygiene thoroughly before the procedure.
- Warm the medication to **body temperature** (hold in hand for a few minutes) to prevent dizziness or nausea.
- Position the client in a **side-lying (lateral) position** with the affected ear facing upward.
- Pull the pinna (outer ear):
  - Up and back for children over 3 years and adults.
  - Down and back for children under 3 years.
- Instill the prescribed number of drops into the ear canal without touching the dropper to the ear.
- Instruct the client to remain in the side-lying position for 2–3 minutes to allow absorption.

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- Place a small cotton ball in the outer part of the ear if needed (do not push it deep into the canal).
- Do not rinse the dropper after use, store it properly.
- NCLEX Tips:
- Never insert **cotton deep into the canal,** it can push the medication out or damage the ear.
- Warming the solution **prevents vestibular stimulation** (e.g., vertigo, nausea).
- Avoid giving cold drops directly from the fridge.
- Always document the medication, site (left or right ear), and client's response.

➢ 6-Administer ophthalmic ointment:

- **Ophthalmic ointments** are medications designed for application in the **eyes**.
- Common indications include **eye infections**, **inflammation**, and **dry eyes**.
- Steps for Safe Administration:
- **Perform hand hygiene** before and after the procedure.
- **Remove any eye secretions or crusts** gently using sterile gauze and warm water.
- **Position the client sitting upright** and instruct them to **tilt their head back and look upward**.
- **Avoid touching the tip** of the medication tube to maintain sterility.
- **Gently pull down the lower eyelid** to expose the **conjunctival sac**.
- **Apply a thin strip (½ inch)** of ointment inside the lower eyelid **from inner to outer canthus**.

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- Instruct the client to **gently close the eye** (not squeeze it) to distribute the medication.
- **Do not apply pressure to the eyeball** or rub the eye after administration.
- NCLEX Tips:
- **Do not touch the eye** with the applicator tip this prevents contamination and injury.
- **Administer ointment after eye drops**, if both are prescribed.
- **Blurred vision is expected temporarily** after ophthalmic ointment advise the client to avoid driving right after.
- Always **label** which **eye the medication was given in** (left, right, or both).

➢ 7-Administer ORAL Medication for Pediatric Client:

- Always measure **liquid medications using an oral syringe** for accuracy.
- If the child refuses the medication, involve the parent to encourage participation (e.g., allow the child to press the syringe or choose the flavor if possible).
- If the child vomits immediately after taking the medication, **do NOT re-administer** unless specifically instructed by the healthcare provider.
- Always notify the provider for further instructions in such cases.
- Special Considerations for Infant:
- Do NOT mix oral medication in infant formula
    - The baby might not finish the full amount, resulting in an incomplete dose.

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- Do NOT pinch or press the nose during administration
    - This can cause distress or aspiration.
- Use an oral syringe for both measuring and administering the medication.
- Position the infant in a semi-reclining position
    - Helps reduce risk of choking or aspiration.
- Administer the liquid slowly into the side of the cheek
    - This prevents gagging and promotes safe swallowing.
- NCLEX Tips:
- Never add meds to a bottle or food unless ordered this can result in incomplete dosing.
- Use distraction techniques (e.g., play, pacifiers) with toddlers and infants.
- Never force medication aggressively increases trauma and refusal in the future.
- Document time, dose, and response to the medication.

➢ 8-Administer Nasal spray:

- Steps for Safe and Effective Administration:
- Position the client in a high Fowler's or sitting position →Ensures proper spray direction and reduces risk of aspiration.
- Instruct the client to gently blow their nose before administration if needed.
- Insert the nasal **spray nozzle into one open nostril**, while occluding the other nostril with a finger.

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- Point the spray tip away from the center of the nose (nasal septum) → Spraying directly at the septum can cause irritation, nosebleeds, and damage.
- Ask the client to inhale gently through the nose while spraying the medication.
- Remove the nozzle and have the client breathe out through the mouth.
- NCLEX Tips:
- Avoid **blowing the nose immediately after spraying**—this may remove the medication.
- Clean the nozzle after each use to prevent contamination.
- If multiple sprays are needed, wait about 30 seconds to 1 minute between sprays.
- Label nasal sprays if more than one type is prescribed (e.g., steroid vs. decongestant).

➢ 9-Administering a rectal Suppository:

- Steps for Administration
- **Position the client in the left side-lying (Sims') position** → This allows for **easier access and promotes the natural** curvature of the rectum.
- **Perform hand hygiene** and apply **gloves**.
- **Lubricate** the suppository tip with water-soluble lubricant.
- **Use the index finger** (gloved) to gently insert the suppository.
- **Guide the suppository along the rectal wall** not into the center of stool to ensure proper absorption.

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- **Insert fully past the internal anal sphincter** (usually about 1 inch for adults, less for children).
- **Hold the buttocks together firmly** for a few seconds to prevent immediate expulsion.
- After Insertion:
- Instruct the client to **remain lying down for at least 5–10 minutes**, or longer if possible.
- **Encourage the client not to expel** the suppository immediately allow time for it to melt and absorb.
- Dispose of gloves and wash hands after the procedure.
- NCLEX Tips:
- **Use water-soluble lubricant**, not petroleum jelly.
- If patient has **diarrhea**, absorption may be reduced notify provider.
- **Do not divide suppositories** unless scored and specifically instructed.
- Always **document** time, patient tolerance, and any bowel movement afterward.

➢ **Priority when administers two IV Medication Concurrently:**

- When **administering two IV medications concurrently,** several priorities must be considered to ensure patient safety and medication effectiveness.

⇨ Top Priority:

- Check for IV medication compatibility.
- This ensures the medications can safely be administered together without causing adverse reactions.
- Also, Administration Method:

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- Determine whether the medications can be mixed in the same solution or require separate IV lines.
- Use a Y-site connection or separate IV tubing when necessary.
- Infusion Rate:
- Administer each medication at the **appropriate infusion rate** to avoid adverse effects.
- Some drugs require slow administration to prevent complications like hypotension or allergic reactions.
- Patient Monitoring:
- Continuously observe the patient's vital signs during and after administration.
- Watch for signs of an allergic reaction or any adverse effects.
- Preparation & Documentation:
- Follow proper hand hygiene and safety protocols while preparing the medication.
- Accurately document the administered doses, time of administration, and any patient responses.

⇨ NCLEX Safety Tips:

- Never mix IV meds unless verified as compatible.
- If unsure about compatibility, pause and clarify with the pharmacist or provider.
- Priority = patient safety before speed of administration.

➢ **Right medication administration:**

- **This refers** to ensuring that medications are administered correctly, following the "Five Rights" of Medication Administration
- which are:

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- **Right Patient** – Confirm the patient's identity using at least two identifiers (e.g., name and date of birth).
- **Right Medication** – Verify that the correct medication is being administered.
- **Right Dose** – Ensure the correct dosage is given according to the prescription.
- **Right Route** – Administer the medication using the correct method (e.g., oral, IV, intramuscular).
- **Right Time** – Give the medication at the correct time and frequency.

⇨ For Safe medication:

- **Label all medication** don't give any Medications Not Label or damage.
- **Some Medication** needs review for Lab and **anticoagulation.**

⇨ NCLEX Safety Tips:

- Do not administer a med **that another nurse prepared.**
- Be especially cautious with high-alert drugs (e.g., insulin, heparin).
- Document the administration immediately after giving—not before.

➢ **Isotonic Fluid Therapy:**

- Used to treat Client with extracellular **Fluid defect (dehydration).**
- Normal saline (0.9% sodium chloride), lactated Ringer's solution, 5% dextrose in water (D5W), and Ringer's solution.
- May Cause Fluid **overload in** client with **Renal failure or heart failure**.

⇨ Isotonic IV fluid 9% sodium chloride and Ringer:

- Used as Fluid replacement for Client with Fluid Volume deficit.

⇨ Key words for Dehydration:

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- **Capillary more than 3 second** is abnormal means **Fluid volume deficit** or **dehydration.**
- **Hyperemesis gravidarum** and Tachycardia Indicate dehydrate.
- Elevate **Bun** indicates dehydration.
- **Amber urine**.
- The heart rate increases (tachycardia) Postural Hypotension.
- Dry mucous membrane, Poor skin.
- Decrease urine output.
- Increase **urine gravity which indicates** high concentrate of urine due to fluid Lose also **Increase Bun** due to Low urine output. In general, normal values for specific gravity are as follows: **1.005 to 1.030.**

➢ **PCA:**

- PCA is a **method of pain control that allows the patient** to self-administer small doses of analgesic medication (usually opioids) via a pre-programmed IV pump.
- The PCA device is **programmed to prevent overdose** by setting dose limits and lockout intervals.
- Key Nursing Considerations:
- Client must be alert and able to understand usage.
- Only the patient should press the button family members should never assist in medication delivery.
- Assist the client when getting out of bed to prevent falls (opioids cause sedation, dizziness, hypotension).
- Monitor for respiratory depression, sedation level, and pain relief regularly.
- Importance of IV Fluids with PCA:

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- Maintain patency of the IV line to **ensure continuous and effective PCA medication delivery.**
- Ensure consistent IV access, so the PCA device can function properly.
- Prevent clotting or **blockage of the IV line**, which may lead to interruption of pain relief or risk of malfunction.
- Flushing protocols or continuous IV fluids are often required along with PCA to keep the line open.
- NCLEX Tips:
- Monitor vital signs, oxygen saturation, and pain scale regularly.
- Keep naloxone (Narcan) available in case of opioid overdose.
- Educate the patient on how and when to use the PCA button.
- Do not give supplemental opioids unless ordered — PCA already provides adequate baseline

➢ **Anti-platelets agents:**

- Purpose:
- Prevent platelets from clumping together, which reduces the formation of blood clots (thrombi).

⇨ Antiplatelets Used:

- **Heart attack prevention** (especially in people with a history of coronary artery disease).
- **Stroke prevention** (especially for patients with atrial fibrillation or previous strokes)
- **After stent placement** to prevent stent thrombosis.
- **Peripheral artery disease (PAD)** to prevent blood clot formation in limbs.

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⇨ Common Types of Antiplatelet Drugs:

◊ **Aspirin:**

- Prevention of **heart attacks, strokes**, and blood clot formation in patients with cardiovascular disease.

⇨ Side Effects:

- **Stomach ulcers**, gastrointestinal bleeding, increased risk of bleeding.

◊ **Clopidogrel (Plavix):**

- **Often prescribed** after heart attacks, strokes, or stent placement.

⇨ Side Effects:

- Increased bleeding risk, allergic reactions.

⇨ Sign and symptoms of bleeding:

- **Bruising** is a Common with **anti-platelet agent.**
- The nurse should report sign of **uncontrolled bleeding** such **as bloody stool** and sign of h**emorrhagic**, **Headaches and Slurred speech.**

◊ NCLEX Key Points and Nursing Considerations:

- Monitor for Bleeding:
- Watch for signs of internal bleeding (e.g., bruising, tarry stools, hematuria).
- Patients on **antiplatelets are at higher risk** for GI bleeding, especially with aspirin.
- Discontinue Prior to Surgery:
    - Antiplatelet agents should typically be discontinued 5–7 daysbefore surgery to reduce the risk of excessive bleeding.
- Patient Education:

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- Advise patients to avoid alcohol and NSAIDs (e.g., ibuprofen) due to the increased risk of bleeding.
- Report any signs of unusual bleeding (e.g., nosebleeds, bleeding gums).
- Lab Monitoring:
- CBC (Complete Blood Count) to monitor thrombocytopenia (low platelets).
- Monitor liver and kidney function as antiplatelets can affect these organs.

➢ **Guidelines for Administering Enoxaparin Injection:**

⇨ Do Not Expel the Air Bubble:

- **Enoxaparin pre-filled syringes** contain **a small air bubble** that should not be expelled before injection.
- The air bubble **helps ensure the entire dose** is **administered** and prevents medication leakage.

⇨ Avoid Rubbing the Injection Site:

- **Do not rub the injection** site after administration.
- **Rubbing** increases the risk of hematoma (bruising) and bleeding.

⇨ Injection Angle:

- **The injection** should be given **at a 90-degree** angle when administered subcutaneously.

⇨ Best Injection Site:

- **The preferred site** for subcutaneous anticoagulant injections is the right or left lateral abdominal wall.
- **Stay at least 2 inches** away from the **umbilicus (belly button)** to avoid irritation and bruising.

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➢ Steps to Prepare Medication from a Glass Ampule:

⇨ Open the Ampule Safely:

- Press on the upper stem of the ampule using your **fingernail.**
- **Use a gauze pad** or alcohol swab to break the neck away from body to prevent injury.

⇨ Withdraw the Medication:

- **Use a filter needle** to withdraw the medication.

⇨ Replace the Needle:

- After drawing the medication, **replace the filter needle** with an appropriate injection needle before administering the drug.

⇨ Proper Disposal:

- Dispose of **the ampule and filter needle** in a sharps container to prevent injuries.

⇨ Important Safety Rule:

- **Do not inject air** into a glass ampule when withdrawing medication.

➢ Anti-Embolism Socks:

- **Which are used** as part of **venous thromboembolism (VTE)** prophylaxis to **improve blood circulation** and prevent blood clots.

⇨ Key Points About Anti-Embolism Socks:

◊ Purpose:

- **Helps prevent deep** vein thrombosis (DVT) and **pulmonary embolism** (PE) by improving venous return in the legs.
- Often used in hospitalized or post-surgical patients at risk of clot formation.

⇨ Proper Use:

- **Do not roll down**, cut, or alter the socks in any way.

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Classification: Internal Use

- Modifying them can reduce effectiveness and increase the risk of restricted blood flow or discomfort.

Formula Method:

⇨ **Desired** dose or prescribed dose(D) **over** Available dose (on hand) (H) X **Quantity.**

➢ **Desired amount (D)**

- Which means **Doctor order** or **prescribed** dose.

➢ **Amount on Hand (H)**

- The does on a container that **available does.**

➢ **Volume:**

- **Quantity(Q)**
- a form in amount in which a drug Supplied may be **Fluid (ML)** or **Pill** (Capsule).

⇨ **Just focus here:**

- **The prescribed dose** and the **available dose** should be on the **same unit.**
- **Also, when calculating** how many tablets or capsule administer to a client **the Quantity** often be **one or two tablet as he will say.**
- **When calculating the volume often be by ML.**
- When he said **record the answer whole number** so you will write only the **number without decimal** as if the answer is 32.4422 so the **whole number is 32**

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Classification: Internal Use

- **When he said record the answer one decimal place** so you will write only **one decimal** as if the answer **is 32.332** so the one decimal place is **32.3**
- **When he said record the answer two decimal place** two decimal place so you will write only two decimals as if the answer **is 32.332** so the **two decimal place is 32.33**

➢ **Key points here**

⇨ **1g** = **1000mg**

⇨ **1 mg (milligram) = 1000 mcg (micrograms)**

⇨ **1L** = 1000ml

⇨ **1kg**=2.2 Lb

⇨ **1 cm (centimeter)** = **10 mm (millimeters).**

⇨ **1 Teaspoon (tsp) = 5 mL (milliliters).**

⇨ **Tablespoons**=**15ml**

⇨ **Ounce**=**30ml**

➢ **Examples**

- **Administer** digoxin 0.5mg IV.
- The drug concentration **available** 0.25 mg per ml
- How many ML Will You need to administer?

⇨ D = 0.5 mg

⇨ H= 0.25 mg

⇨ Q= Im.

⇨ Example:

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➢ The nurse is caring for a client who has **a prescription for albuterol 5 mg** via nebuliser **every 4 hours**. The **nurse has** albuterol **2.5 mg/ 3 mL available**. How many mL should the nurse administer to the client **with each dose**? Record your answer using a **whole number.**

- Desired dose = albuterol 5 **mg**
- Amount on hand = has albuterol 2.5 **mg**
- Quantity =3 ml.

⇨ Example:

➢ The nurse has received a prescription from the health care provider to **administer 94 mg** of methylprednisolone via IV push. The **available vial contains 125 mg** in 2 **mL**.

➢ Select the syringe containing the appropriate amount of medication to be administered.

- Desired dose = 94 mg
- Amount on hand = 125 mg
- Quantity =2 mL.

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5-Procedures and Skills

➢ Norepinephrine:

- Primarily used in **critical care settings** to manage severe hypotension (low blood pressure) and **shock**.
- **Restores blood pressure** by causing **vasoconstriction.**

⇨ Medical Uses:

- **Septic shock:** First-line treatment to **restore blood pressure** in septic patients.
- **Cardiogenic shock:** Used when the heart is unable to pump enough blood, leading to **low blood pressure.**
- **Neurogenic shock:** Helps maintain blood pressure in cases of spinal cord injury.
- **Post-cardiac arrest care:** Used to maintain adequate circulation **after resuscitation**.

⇨ Side effect of norepinephrine:

- **Extravasation Risk:** If norepinephrine **leaks outside** the vein (extravasation), it can cause severe tissue necrosis (tissue death).
- **Ischemia:** Due to **intense vasoconstriction,** it may reduce blood flow to extremities, leading to **cold, mottled skin** or even gangrene in severe cases.
- **Arrhythmias (Irregular Heartbeats):** Can increase the risk of tachycardia, bradycardia, or dysrhythmias.
- **Hypertension:** Excessive doses can cause dangerously high blood pressure.

⇨ Key NCLEX Points:

- **Monitor BP continuously** – risk of hypertension
- **Assess perfusion** – monitor urine output, cap refill

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- **Norepinephrine** helps raise blood pressure by **narrowing blood vessels** (vasoconstriction). This helps send more blood to **important organs** like the brain and heart. But too much vasoconstriction can reduce blood flow to the **kidneys** and **fingers/toes**.

- **Central line preferred** – can cause severe tissue necrosis
- **Monitor for dysrhythmias** and **tachycardia**
- **Titrate dosage** based on BP response
- In Case of extravasation of norepinephrine occurs, the nurse should
  - **STOP the infusion** and disconnect the IV tubing.
  - **Perform a neuromuscular** assessment of the affected extremity.
  - Notify the HCP.
  - Administer antidote **phentolamine.**
  - Insert a new peripheral VAD In the opposite extremity.

➢ **Eepinephrine (adrenaline):**

- It's used in **emergencies** due to its ability to **increase heart rate**, contractility and **bronchodilation** (making it easier to breathe (especially useful in **anaphylaxis and asthma attacks**).

⇨ Medical use:

- **Cardiac arrest/cardiopulmonary resuscitation (CPR): Epi**nephrine stimulates heart.
- **Eye surgery:** Epinephrine helps keep **pupils dilated.**
- **Septic shock:** used in some cases when **norepinephrine** is not effective enough.

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- **Sever Ashma& Bronchospasm :**Epinephrine opens airways and decreases airway spasms.
- **Anaphylaxis: Epinephrine relaxes airway muscles. It's the** first-response treatment for severe, life-threatening **allergic reactions.**

⇨ Routes of Administration & Dosages:

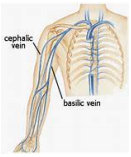
- **IV (Intravenous):** Used in cardiac arrest (**1 mg every 3–5 minutes** during CPR).
- **IM (Intramuscular):** Used in anaphylaxis (0.3–0.5 mg per dose).
- **Subcutaneous (SC):** Less commonly used for **asthma.**
- **Nebulized:** Inhaled epinephrine for severe **upper airway swelling** in children.

⇨ In case there is Client with Sever allergy resulting in anaphylaxis:

- The first-line treatment for anaphylaxis is **Eepinephrine (adrenaline). It** is available by prescription in **an auto-injector (EpiPen)**.
- The injection should be given in case of **Difficult Breath, swelling, wheezing, and stridor.**
- Epinephrine works to reverse the life-threatening symptoms.

⇨ Teaching Should include in case sever allergy (EpiPen):

- The Client should go to ER to receive **emergency care.**
- **The auto injector** should be available for emergencies.
- Don't remove The Child Clothing **Should give immediate** through **Clothing** into **Outer Thigh NOT ARM**.
- Should be held for 10 seconds.
- Message for an additional **10 seconds.**



➢ **CVC and PICC:**

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Classification: Internal Use

- Both **CVC** (Central Venous Catheter) and **PICC** (Peripherally Inserted Central Catheter) are **types of central line** used for **long-term IV** therapy, but they have key differences in **insertion site, duration**, and **purpose**.

◊ **Peripherally inserted Central Venous catheters (PICC):**

- **A PICC line** is a type of central venous catheter (CVC) inserted into a peripheral vein (usually in the **upper arm**) and advanced toward the **superior vena cava** near **the heart**.
- It is used for **long-term intravenous** therapy.

◊ The ideal Site for Insertion of a peripheral venous access device PICC.

- Palpable Straight Vein on the dorsal Surface of the Clients **Cephalic Vein**

⇨ Uses of a PICC Line:

- **Long-term IV medications**: Chemotherapy, antibiotics, or parenteral nutrition.
- **Frequent blood draws**: Reduces the need for repeated needle sticks.

⇨ Advantages of a PICC Line:

- Can stay in place for weeks to months.
- Lower risk of infection compared to other CVCs.

⇨ Risks and Complications:

- **Infection (Sepsis)**: Requires strict sterile care.
- **Thrombosis (Blood Clots):** Can block the catheter.
- **Malposition:** Can migrate.
- **Phlebitis**: Inflammation of the vein.

⇨ Prior a dressing Change:

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- The Nurse should Perform hand hygiene.

- Use Sterile dressing wears a mask, and sterile gloves.
- **During injection cap** or **tubing changes**, the client is instructed to perform the Valsalva maneuver to prevent air from entering the line (take a deep breath, bear down, and hold for 15 to 20 seconds)."

◊ **CVC:**

- **also called a Central Line**, is a large IV catheter inserted directly into a **central vein** (e.g., jugular, subclavian, or femoral vein) and extends into the **superior vena cava.**

⇨ Indications for CVC:

- **Short-term** intensive treatments (e.g., ICU patients)
- **Rapid** fluid resuscitation.
- Total parenteral nutrition (TPN).
- **Frequent blood** draws or medication administration
- Hemodynamic monitoring (e.g., CVP measurement)

⇨ Common CVC Insertion Sites:

- Internal Jugular Vein (neck).
- Subclavian Vein (under the clavicle).
- Femoral Vein (groin) – Higher infection risk

⇨ Duration:

- **Short-term** use (days to a few weeks).

⇨ Which One is Better?

- **CVC i**s used for critically ill patients who need intensive treatment for a **short period of time.**
- **PICC** is preferred for patients needing **long-term IV access** with fewer complications.

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➢ Abdominal assessment (IPPA):

- **IPPA stands** for Inspection, Palpation, Percussion, and Auscultation, in abdominal assessment.

◊ The correct order **prevents altering bowel sounds before listening to them:**

⇨ Inspection:

- **Look and observe** for abnormalities such as distension, scars, bruises, or bulging.

⇨ Palpation:

- **Feeling** for Tenderness or Masses.

⇨ Percussion:

- **Tapping** to Assess Sounds.

⇨ Auscultation (Listening with a Stethoscope)

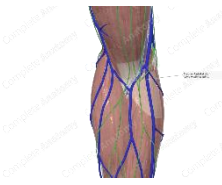
- **Normal bowel sounds**: Occur **every 5–30 times** per minute.
- Hyperactive sounds:
  - Found in diarrhea or early bowel obstruction.
- Hypoactive or absent sounds:
  - May indicate ileus (paralysis of the intestine) or peritonitis.

⇨ Nursing Considerations:

- If a **patient has severe abdominal pain**, avoid deep palpation until further evaluation.
- Document findings accurately, noting any distension, tenderness, or abnormal sounds.

➢ Blood Specimen Collection:

◊ **Steps for Safe Blood Collection**



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- **Prepare Equipment:** Gather syringes, needles (21-23G), alcohol swabs, tourniquet, and tubes.
- Hand Hygiene & Gloves: Prevents infection.
- **Choose Vein:** Median cubital vein is the most common site. Avoid veins near bruising or scars.
- **Apply Tourniquet:** 3-4 inches above the puncture site, not for more than 1 minute.
- **Insert Needle** at 15-degree Angle.
- **Blood Collection**: Fill tubes in the correct order to prevent contamination.
- **Remove Tourniquet** Before Needle: Prevents hematoma formation.
- Apply Pressure & Bandage: Prevents bleeding and bruising.

⇨ Important Considerations:

- **Limit attempts** to 2 Multiple attempts cause bruising and discomfort.
- Avoid Mastectomy Side.
- Never Draw Blood Above an IV Infusion – Can dilute results.
- Use the Correct Tube for the Test, Different tubes contain different additives.

➢ Urine Specimen Collection General Guidelines:

1.**Hand Hygiene:**

- Always wash hands before and after the procedure to prevent infection.

2. **Use a Clean or Sterile Container:**

- Clean container for routine urinalysis.
- Sterile container for urine culture.

3. **Midstream Clean-Catch Method (for culture):**

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- Clean perineal/genital area before collection.
- Begin urinating, pause, then collect the midstream urine.
- Avoid touching the inside of the container or lid.

4. **Label the Specimen:**

- Include patient name, date, time of collection.

5. **Timely Transport:**

- Send to lab within 1 hour or refrigerate if delayed.

6. **For Catheterized Patients:**

- Do not collect from the drainage bag.
- Use the sampling port with sterile technique.

7. 24-Hour Urine Collection:

- Discard the first void, then collect all urine for 24 hours.
- Keep container on ice or refrigerated.

◊ **Timed urine Collection test:**

- **A Timed Urine Collection Test** is a diagnostic test used to **measure specific substances** in the urine over a set period, **typically 24 hours**. It is commonly used **to assess kidney function**, hormone levels, and metabolic disorders

⇨ Procedure:

- **Start Time:** The patient empties their bladder (discards the first urine) and notes the time as the start of the collection period.
- **Collection Period:** Every drop of urine is collected in a special container provided by the lab for the next 24 hours.
- The container is usually kept refrigerated or on ice.
- **End Time: Exactly 24 hours after the start**, the last urine sample is collected.
- **Transport: The container** is returned to the lab for analysis.

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⇨ Important Nursing Considerations (NCLEX Focus):

- **Ensure patient education:** The patient must understand the importance of collecting all urine within the specified period.
- **Avoid contamination:** No tissue, stool, or foreign substances should enter the collection container.
- **Maintain storage conditions:** Some tests require refrigeration.
- **The Proper Container** should bring from laboratory put into a Plastic Container to protected from light.
- **Prefer and common start** the Collection in the **morning** after the Clients **First morning voiding** and at the same hour Next morning. But we can start in any Time of the day after the client empty the bladder, but we must **bring a new container.**

➢ **Urine Catheter:**

⇨ Content:

- Catheter Tube.
- Port for Specimen.
- Balloon for Inflate, Deflate.

◊ Male catheterization procedure:

⇨ **Preparation:**

- **Explain the Procedure**: Inform the patient about the process and obtain consent.
- **Ensure Privacy**: Use a privacy screen or curtain.
- **Hand Hygiene:** Wash hands thoroughly and wear sterile gloves.
- **Position**: The Client Supine with Knee Flexed (Lithotomy position for female).

- Use none dominate to gently spread **the Labia.**

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Classification: Internal Use

- Use the dominate hand to Cleaned the **labia Majora First**, Then the **labia Minora** and Lastly **urinary meatus.**
- Use The **dominate hand** to advance the Catheter (2-3 inches 5-7 cm) or until urine return is visualized then **advance it an addition** (1-2 inches 2.5 -5cm) Before Inflating the balloon

⇨ If No urine is returned from the indwelling Catheter:

- it May be inserted **into the vagina** not into the urethra.
- The Nurse Can leave the original Catheter in place as a **landmark.**
- **Reinsert** a new sterile Collector above the original.
- **Obtain a new kit** and insert the Catheter at a higher position in the perineal area.

⇨ For Removal:

- **Perform,** hand Hygiene keeps privacy and explain the procedure.
- **Apply** clean gloves -place a pad Underneath Client
- **Deflate** The Balloon
- **Remove** The catheter gently and slowly.
- **Measure** urine before discard and Remove gloves, hand hygiene.

⇨ To Collect urine specimen from a client:

- The Nurse should clean **the port**, aspirate urine from the **specimen Port** Use Sterile syringe.
- Must-be Collected an aseptically from the **Port on the Catheter tub**. If You Collected From **urine bag is not proper technique**
- You should Clean the **Collection Port**
- Use aseptic technique to transfer the specimen to sterile.

⇨ If there are obstructions, clots, Kinging in the Catheter Tube:

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Classification: Internal Use

- **Assess for** a Mechanical Obstruction by inspecting The Catheter Tube Remove **Kinking or Compression of Catheter Tube**, attempt to dislodge a visible obstruction.
- **Flushed** via the catheter tubing this intervention May alleviate obstruction.

➢ Heel stick for New-born:

- Frequently used to collect blood specimen from a new-born.

⇨ Indication for heel stick

- For capillary Blood glucose and labs.

⇨ The Proper technique:

- Obtain the specimen from the **outer Lateral** or **medial aspect** of the new-born heels.
- The nurse should **avoid puncture** from the **centre** of heel to prevent injury.

➢ Suctioning:

- **Suctioning** is needed when a patient has excessive secretions that obstruct the airway and impair gas exchange.

⇨ Signs that indicate the need for suctioning include:

- **Abnormal breath** sounds (e.g., gurgling, wheezing, crackles)
- Altered mental status (due to hypoxia).
- **Increased breathing** work (use of accessory muscles, nasal flaring).
- Decreased oxygen saturation (SpO2).
- Increased respiratory rate (tachypnea) & heart rate (tachycardia).
- Pallor or cyanosis (bluish skin) indicating poor oxygenation

⇨ Types of Suctioning:

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- **Oral Suctioning** for secretions in the mouth.
- **Nasopharyngeal/Nasotracheal** Suctioning for secretions in the upper airway.
- **Endotracheal Suctioning** for intubated or tracheostomy patients

⇨ Suctioning Procedure:

- Assess the need for suctioning.
- Position the patient in a semi-Fowler's or upright position.
- Pre-oxygenate before deep suctioning.
- Use sterile technique (for deeper suctioning).
- Limit suctioning time to 10-15 seconds per pass to avoid hypoxia.
- Monitor patient response (watch for distress or desaturation).

◊ **Tracheostomy care procedure:**

- Gather supplies and Position Client **Semi Fowlers position.**
- DON PPE (Musk, goggles, clean gloves)
- Remove soiled dressing with clean gloves.

- **Don Sterile gloves** to remove old disposable Cannula.
- Insert a new Inner Cannula.
- Clean around Stoma with Sterile water or saline
- Dry and replace sterile gauze Pad.

⇨ Tracheostomy suction:

- Place the Client in semi-Fowler position.
- **Pre oxygenated** 100% oxygen.
- Use strict sterile techniques.
- **Insert the catheter** without apply suction, suction Only While Withdrawing the catheter from the tracheotomy Tube.
- **Apply intermittent suction** and rotate the Catheter While withdrew it.

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- Limit Suction no more 10 second.

⇨ Note: Instilling **sterile normal saline** into tracheostomy no longer support by evidence:

- **Increased risk of infection**: Introducing saline can introduce pathogens into the airway, increasing the likelihood of infection.
- **Potential for aspiration**: There is a risk that saline could be aspirated into the lungs, leading to complications such as pneumonia

➢ **Cleansing enema:**

- Used to stimulate bowel movements and cleanse the colon, often before medical procedures like a **colonoscopy or to relieve constipation.**

⇨ Tap Water Enema:

- **This is a hypotonic solution.**
- Water moves into the bowel, softening stool and promoting a bowel movement.
- Not safe for repeated:
  - can cause water intoxication or electrolyte imbalance.

⇨ Normal Saline Enema:

- This is an **isotonic solution** (same concentration as body fluids).
- Safest choice for infants, children, and older adults.
- Can be used repeatedly without disturbing electrolyte balance.

⇨ Sodium Phosphate Enema (Fleet Enema):

- **This is a hypertonic solution**.
- It pulls water into the bowel from surrounding tissues → rapid bowel movement.
- Small volume, fast acting.

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- **Avoid in patients with dehydration** or kidney problems risk of fluid and electrolyte issues.

⇨ Procedure for Administering a Cleansing Enema:

- Place the patient in a **left lateral position** with knees flexed (Sim's position).
- Hang the enema bag no more than 12 inches above the rectum to prevent rapid infusion.
- Lubricate the enema tube and gently insert 3–4 inches into the rectum.
- Administer the Solution Slowly If the patient experiences cramping, pause for 15–30 seconds and slow the flow.
- Ask the patient to hold the enema for 5–15 minutes to increase effectiveness.
- Help the patient to the toilet or bedpan and observe the results.

⇨ Complication during administration

- Abdominal cramping and discomfort the nurse Should Stop Temporally (15-30 second) and slow the rate.

➢ Transfusion reaction For Blood:

- Blood transfusion reactions occur when the immune system reacts negatively to **transfused blood**. These reactions can be mild to life-threatening.

◊ Types of Blood Transfusion Reactions & Management:

⇨ Acute Hemolytic Reaction (Most Severe & Life-Threatening)

- Cause: ABO incompatibility (wrong blood type transfused).

⇨ Symptoms:

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- Fever, chills
- Lower back pain (classic sign)
- Hypotension, tachycardia
- Dyspnea, chest pain
- Hemoglobinuria (red/dark urine) → Can cause acute kidney failure

⇨ Nursing Actions:

- STOP transfusion immediately.
- Disconnect blood tubing → Start normal saline (0.9% NaCl) with new tubing
- Monitor vital signs.
- Urine output (signs of kidney damage).
- Notify healthcare providers (HCP) and blood bank.
- Send blood bag and tubing to lab for testing.

⇨ **2. Febrile Non-Hemolytic Reaction (Most Common):**

- Its type of **transfusion reaction is characterized** by a rise in body temperature (by more than 1°C) during or after a blood transfusion, without any signs of hemolysis (red blood cell destruction).

⇨ Cause:

- **Immune response** to white blood cells (WBCs) in the transfused blood.
- **White blood cells** (often present in blood products) can cause the body to mount an immune response, leading to fever.

⇨ Symptoms:

- Fever (>1°C increase) within 1-6 hours
- Chills, headache
- Flushing, muscle pain.

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Classification: Internal Use

◊ **Anaphylactic Reaction (RARE but LIFE-THREATENING):**

- An anaphylactic reaction to a blood transfusion is a severe, life-threatening allergic response that occurs **within minutes of starting the transfusion.**

◊ Caused by:

- **What happens in the body?**
- The **donor blood** contains **plasma proteins** (like **IgA**).
- Some patients **lack IgA immunoglobulin A deficiency** (a rare immune condition).
- When they receive blood **containing IgA**, their immune system sees it as a **foreign threat** and **overreacts**.
- This causes a **severe allergic response** called anaphylaxis.

⇨ Symptoms:

- Sudden respiratory distress (wheezing, dyspnea)
- Hypotension, tachycardia
- Angioedema (severe swelling of lips, face, throat)

⇨ Nursing Actions:

- STOP transfusion IMMEDIATELY.
- Administer epinephrine, corticosteroids, and antihistamines.
- Provide oxygen and prepare for possible intubation.
- Notify HCP and ensure patient airway.

⇨ **4-Circulatory Overload:**

- Circulatory overload (or Transfusion-Associated Circulatory Overload (TACO)) occurs **when the volume of blood transfused** exceeds the body's ability to handle it, leading to fluid overload.

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Classification: Internal Use

- It is a complication that results from **too rapid or too large** a transfusion of blood products.

⇨ Symptoms:

- Shortness of breath, dyspnea, crackles.
- Hypertension, jugular vein distension (JVD).
- Tachycardia.
- Pulmonary edema (severe cases)

⇨ Nursing Actions:

- Slow or stop transfusion
- Position patient in High Fowler's position (90° sitting up)
- Administer diuretics (e.g., furosemide/Lasix) as prescribed
- Monitor oxygen saturation and lung sounds.

⇨ **7-Sepsis (Bacterial Contamination)**

- Sepsis from **bacterial contamination** during a blood transfusion occurs when **the transfused blood contains bacteria** that infects the patient's bloodstream, causing a systemic infection.
    - This can happen if the **blood products are improperly** stored or handled.

⇨ Symptoms:

- Fever, chills, shock
- Hypotension, tachycardia
- Severe abdominal pain.

⇨ Nursing Actions:

- STOP transfusion immediately
- Obtain blood cultures and administer IV antibiotics
- Provide IV fluids and vasopressors if needed.

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◊ General Nursing Responsibilities During Blood Transfusion:

⇨ Before Transfusion:

- Verify blood type & patient ID with another nurse
- Check vital signs before starting
- Use a blood filter and start transfusion slowly for first 15 minutes

⇨ During Transfusion:

- Monitor for first 15 minutes (most reactions happen early)
- Check vital signs every 15-30 minutes

⇨ After Transfusion:

- Dispose of blood tubing properly.
- Document any reactions & patient's response

⇨ **Key NCLEX Tips:**

- FIRST action if reaction occurs. STOP the transfusion.
- What IV fluid is used? 0.9% Normal Saline (NEVER use Dextrose or Lactated Ringer's!)
- Classic sign of hemolytic reaction? Lower back pain.
- How long can blood hang? Maximum 4 hours.
- Can you give medications with blood? NO Always use a separate IV line.

➢ Foreign Body aspiration for infants:

- **Foreign body aspiration** (FBA) **occurs** when an object is inhaled into the airway, leading to **choking**, respiratory distress, or airway obstruction.
- **It is most common** in infants and toddlers due **to their tendency** to put objects in their mouths.

⇨ Signs & Symptoms of Foreign Body Aspiration:

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Classification: Internal Use

◊ **Partial Obstruction:**

- Coughing, gagging, or stridor (high-pitched sound).
- **Wheezing** (indicates object in lower airway).
- Hoarseness or voice changes.
- Increased work of breathing (**nasal flaring, retractions, tachypnea**).

⇨ Severe Obstruction (Emergency):

- Inability to cry, cough, or make sounds.
- **Cyanosis** (blue skin/lips).
- Loss of consciousness (late sign).

⇨ If the infant (under 1 year) is choking and conscious:

- **Back slaps and chest Thrusts**
- Position the infant prone (face down) over your forearm, supporting the head.
- **Deliver 5 back blows** between the shoulder blades using the heel of your hand.
- **Flip the infant** face-up and provide **5 chest thrusts** using two fingers at the center of the chest (just below the nipple line).
- Repeat until the object is **expelled** or the infant becomes unconscious.

⇨ If the infant is unconscious:

- Start CPR:
- Begin with **30 chest compressions.**
- Check the mouth for the object **after every cycle.**
- **Do NOT** perform blind finger sweeps (risk of pushing the object further).
- If the airway is clear, attempt to rescue breaths.

⇨ Prevention Strategies for Parents (NCLEX Education Focus):

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- **Avoid small objects:** No peanuts, grapes, hot dogs, or small toys near infants.
- Supervise mealtimes and avoid distractions while feeding.
- Keep floors and play areas clear of small items.
- Encourage proper **chewing and eating habits.**

⇨ NOTE:

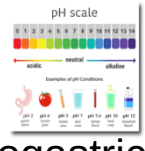
- **With** a foreign body airway obstruct **should apply, Back slaps and chest Thrusts** it's a primary rescue Intervention **for Children <1.**
- Should administer until the **foreign body** is dislodged or the Infant becomes **unresponsive.**

➢ **A mastectomy:**

- A mastectomy is a type of **breast cancer surgery** that removes all of **breast tissue** in one or both breasts.
- The procedure is treatment for several types of breast cancer and most breast cancer stages.
- It's also a way to prevent breast cancer if have an increased breast cancer risk.

⇨ In Case of The Client had Mastectomy **and will insert Peripheral Venus Access:**

- The Nurse should **avoid extremities** with lymphedema area and Should Insert in the **Median Vein of the nonaffected arm**.
- The Nurse should avoid insert PVA in the **affected arm**.



➢ **Confirmation for Nasogastric Tube insertion (NGT):**

- **PH ≤5.5 is** a first-line test to confirm correct placement of nasogastric tubes and reduce the risk of **potentially fatal aspiration.**

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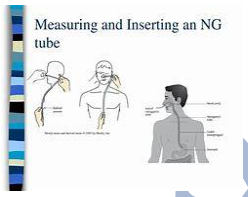
- **PH>6** indicates the NG tube **may not** be in **the stomach**, may duodenum or lung.
- Imaging X Ray.
- Aspirated.
- Air auscultation.



◊ Nasogastric Tube insertion:

- Measure **the tube length**:
- Measure from the **tip of the nose → earlobe → xiphoid process (or midpoint between xiphoid and umbilicus)**.
- Mark the tube at that length.
- **Position the client**:
- Instruct the client to **slightly extend the neck back** during initial insertion (neck hyperextension).
- **Begin insertion**:
- Gently insert the lubricated tube through the nostril toward the back of the throat.
- **Facilitate swallowing**:
- When the tube reaches the **oropharynx**, ask the client to **flex the neck forward** (chin to chest).
- Instruct them to **swallow small sips of water** if allowed.
- This helps guide the tube into the esophagus instead of the trachea.
- **Advance the tube**:
- Continue advancing the tube **gently** until the previously marked point.
- **Verify placement**:
- Confirm placement by **aspirating stomach contents** and **checking pH** (should be ≤5.5).
- Or confirm with **X-ray** (especially before feeding or meds).

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- **Observe for signs of misplacement**:
- **Stop immediately** if the client **coughs persistently**, shows **respiratory distress**, or you feel **resistance**.
- These may indicate **wrong placement into the airway**.
- NOTE:
- **Some NG feeding tubes** have a stylet, which is a thin wire that is **in the NG tube** that helps during placement.
- **If the tube has a stylet:** Pull back slightly on the stylet before placing the tube to make sure it moves freely
- Never Reinsert the **STYLET** when the tube **not in place** if the tube is Not Properly Position and STYLET removed the Nurse Should remove the Tube.

- **if aspirated residual** has returned to the stomach again.
- **Place the client** in a high to Fowler position.
- Flush the NGT Tube Before and after administering feeding.
- Check PH Of The **residual Gastric Content** PH most is usually acid <5 acidity.
- **During NGT tube Insertion** sometimes patient get Cough and gaging so you **must withdraw the tube slightly** and then stop till the client takes a few breaths.

⇨ When using a feeding Tube for medication should be:

- **Crushed** each Medication separate Not Together
- Determine if Medication is available in liquid form.
- Flash The Tube before and after.

➢ **Wound irrigation:**

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- Wound irrigation is a medical procedure used to **cleanse an open** wound by flushing it with a **sterile solution** to remove debris, exudate, bacteria, and other contaminants. It promotes healing and reduces the risk of infection.

◊ **Procedure**:

- Perform hand hygiene and apply clean gloves
- Administer **analgesic 30 to 60 minutes** before the procedure if prescribed
- Irrigation Steps:
- Fill a 30 to 60 mL sterile syringe with normal saline
- Attach an **18 or 19-gauge** catheter to the syringe
- **Use continuous**, steady pressure to flush the wound
- Repeat irrigation until the **wound appears clean**
- Irrigate from the **least contaminated area to the most contaminated**
- Remove the **old dressing and discard gloves**
- **Perform hand hygiene and apply sterile gloves**
- Swab the **wound gently** from the center outward
- Avoid touching **the wound edges** or skin when collecting the sample
- Place the swab in a sterile specimen container without contamination
- Final Steps
- Apply the **prescribed bacitracin** or wound medication
- Apply a new sterile dressing
- Remove and discard gloves
- Perform hand hygiene

- NOTE

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- In Case if there is **wound happened** the Nurse Should review The Client Vaccination Record To **determine the date of last Tetanus** Vaccination.
- The time elapsed since the last tetanus vaccine (usually a booster is recommended if it has been more than 5–10 years, depending on wound severity)

➢ Neutral Protamine Hagedorn (NPH):

- Category:
- Intermediate-acting insulin used to control blood glucose levels in patients with **diabetes mellitus.**
- Administration:
- Administered **subcutaneously (SC)** only **never IV**.
- Typically given **twice daily** (morning and evening).
- Can be mixed with:
- **Rapid-acting insulin** (e.g., Lispro, Aspart)
- **Short-acting insulin** (e.g., Regular insulin)
- When mixing with **Regular insulin**, always:
    - **Draw up the clear insulin (Regular) first**, then the **cloudy (NPH)**
    - This prevents contaminating the clear vial with the cloudy solution

◊ Steps for Mixing NPH and Regular Insulin in One Syringe:

- **Gently roll the NPH (cloudy) vial** between your hands to mix.
- **Clean the tops** of both vials with an alcohol swab.
- **Inject air into the NPH (cloudy) vial first**, but do not draw insulin yet.

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- **Inject air into the Regular (clear) vial**, then **immediately draw the prescribed dose** of Regular insulin.
- Then draw the prescribed dose of **NPH (cloudy) insulin** into the same syringe.
- **Administer the mixture immediately** to avoid altered absorption or effect

➢ Postmortem Care:

- **Postmortem care** is the nursing procedure performed after a patient's death to **prepare the body for viewing** by the family and eventual transfer to the **morgue or funeral home**.

⇨ it may be delayed or not performed:

- If the death is sudden, suspicious, or due to trauma, postmortem care may be delayed.
- Death due to abuse or neglect.
- If the death considered non-natural traumatic, Suicide attempt.
- Religious or Cultural Considerations The Family has **certain Culture** or relieves beliefs.
- In Case of Natural Death:
- If the death is considered **natural**, such as due to **prolonged illness** or **expected end-of-life conditions**,
- The **nurse should proceed with postmortem care** following standard facility policy and protocols.
- In these cases, **postmortem care is typically not delayed**, and the body can be prepared for family viewing or transport.
- NCLEX Considerations for Postmortem Care:

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- Do not remove tubes, IV lines, or medical devices if the death is being **investigated.**
- **Respect the family's cultural** and religious wishes while following hospital guidelines.

➢ Abnormal Pre-Surgical Results:

- If an abnormal test result is obtained before surgery, the nurse must follow proper protocol to ensure patient safety.
- What Should Nurse Do?
- If a **preoperative test result** is abnormal, the nurse should:
- Report the abnormal finding to the provider (surgeon/anesthesiologist) immediately.
- Hold the surgery if needed until the healthcare provider evaluates the result.
- Monitor the patient closely for any symptoms related to the abnormal result.
- **Educate** the patient if further tests or interventions are required.

➢ Hypokalemia:

- **Hypokalemia (K+ < 3.5 mEq/L)** requires prompt treatment to prevent cardiac arrhythmias, muscle weakness, and neuromuscular dysfunction.

⇨ Mild Hypokalemia (K+ 3.0–3.5 mEq/L):

- **Oral Potassium** Replacement (Preferred Route)
- **Give** potassium-rich foods: Bananas, oranges, potatoes, spinach, avocados.
- **Prescribed** potassium supplements (KCl PO)

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- **Take** with food to prevent GI from getting upset.

⇨ Moderate to Severe Hypokalemia (K+ < 3.0 mEq/L or symptomatic)

- **IV Potassium** Replacement.

⇨ Key NCLEX Safety Rules for IV Potassium:

- **Never give IV** push or bolus (can cause fatal cardiac arrest).
- **Must be** diluted in normal saline.
- Infuse slowly (max 10 mEq/hr via peripheral line, 20 mEq/hr via central line).
- **Always use** an infusion pump to prevent rapid administration.
- **Monitor ECG** continuously for arrhythmias.

➢ **Negative Pressure therapy:**

- **Negative Pressure Wound Therapy (NPWT),** also known as wound VAC (vacuum-assisted closure), is a **wound care technique** that uses controlled suction to promote wound healing.

⇨ Purpose of NPWT:

- **Removes excess fluid** and exudate
- **Improves blood flow**
- Reduces wound sizeAids in wound contraction.

⇨ Nursing Care & NCLEX Considerations:

- **Assess the wound** and surrounding skin for signs of infection or complications.
- **Ensure the NPWT** seal is intact (leaks reduce effectiveness).
- **Monitor drainage output** (color, amount, consistency).
- **Maintain prescribed** pressure settings (usually 50-125 mmHg).
- **Change dressing** as prescribed (typically every 48-72 hours or per provider's order).

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- **Assess for pain** and provide analgesia before dressing changes.
- **Administer Pain** Mediation 30 mins Before
- Apply Skin Protectant to Intact skin surrounding wounds.
- Cut Foam to the shape and size of wound.
- Ensure The Prescribed Negative pressure setting applied.
- Verify The Occlusive dressing is free of air leak.

⇨ indication:

- Chronic wounds (diabetic ulcers, pressure ulcers)
- Surgical wounds (dehisced incisions)
- Traumatic wounds (deep lacerations, open fractures)
- Burns (partial-thickness burns)

➢ **The First Step in the Nursing process is assessment:**

- During the assessment, the nurse may:
- Collect health history and review current symptoms
- Perform a physical examination
- Monitor vital signs and other clinical indicators
- Review lab results and diagnostic tests
- Observe the client's behavior and environment
- NCLEX Application Example:
- Scenario:
  - The spouse calls the clinic and says, “My husband is not doing well.”
- What should the nurse do first?
- Correct response:

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- The nurse should ask the spouse to describe the client's symptoms in detail.

- Why?
  - Because the first step is assessment, and by collecting information:
- The nurse can determine if the situation is non-urgent (clinic visit)
- Or if it requires emergency intervention (ER referral)
- NCLEX Tip:
- Never skip assessment don't jump to intervention or advice without first collecting adequate data.
- Even over the phone, assessment is done by asking open-ended questions to gather more information

➢ **Proper Shoulder sling Fit:**

- **For a proper shoulder sling fit,** the nurse should assess that the injured arm is **properly positioned and supported**.

⇨ This includes verifying that:

- The arm is held in a comfortable position, typically with the elbow flexed to about 90°.
- **The hand** is resting on the chest or in a neutral position.
- The sling is adjusted so that it **supports the weight of the arm** without causing excessive pressure on **the neck or shoulder.**
- Elbow is Fixed 90 degree.
- Hand is held slightly above the level ELBOW.
- The sling ends in the Middle of the Palm with Fingers visible.
- The sling supports the wrist Joint.

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➢ Orthostatic hypotension:

- **Defined as a decrease** in blood pressure when a patient moves from a **lying or sitting** position to **standing.**

⇨ On the NCLEX, it's important to understand that the nurse should:

- **Assess Vital Signs in Different Positions**:
- Measure blood pressure and heart rate in **supine, sitting**, and standing positions.
- A drop in systolic **BP of at least 20 mm Hg or diastolic BP of 10 mm** Hg **upon standing** is indicative of orthostatic hypotension.

⇨ Monitor for Signs and Symptoms:

- Observe for dizziness, lightheadedness, blurred vision, weakness, or syncope, which may lead to falls.

⇨ Implement Safety Measures:

- Assist the patient when **ambulating or changing positions.**
- Educate the patient to rise slowly from a lying or sitting position.
- The Nurse Can Place the Client in **Trendelenburg position** Positions to encourage Blood Flow to the head.

➢ Chest Tube Removal:

- Chest tubes are removed when **lung re-expansion** is confirmed, and drainage is minimal.
- Proper nursing actions are crucial to **prevent complications** like pneumothorax.

⇨ Nursing Considerations for Chest Tube Removal (NCLEX Focus)

⇨ Pre-Removal:

- **Assess respiratory status** – Ensure no signs of respiratory distress.

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- **Explain the procedure** – Inform the patient they will feel pressure but minimal pain.
- **Pre-medicate** – Administer analgesics 30–60 minutes before removal to reduce discomfort.
- **Positioning:** Patient should be in semi-Fowler's or high Fowler's position.

⇨ During Removal:

- **Instruct the patient** to take a deep breath, hold it, and bear down (Valsalva maneuver) – Prevents air from entering the pleural space.
- **Provider removes** the tube in one swift motion while applying sterile occlusive dressing to prevent air entry.

⇨ Post-Removal Care:

- **Apply an airtight sterile dressing** – Usually petroleum gauze and dry dressing to prevent air re-entry.

⇨ Monitor for complications:

- **Respiratory distress** or diminished breath sounds → May indicate pneumothorax.
- **Excessive drainage from the site** → Could signal bleeding or infection.
- Chest Tube Removal:
- **Encourage deep breathing**, coughing, and incentive spirometry – **Prevents** lung collapse.
- **Obtain a chest X-ray** (if ordered) to confirm lung expansion and absence of pneumothorax.
- **Give analgesic** 30-60 min before Procedure.
- **Instruct Client** to breath in and hold then bearing down while removing it.

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- **properly sterile** petroleum gauze dressing
- Provide HCP sterile suture.

➢ Thoracentesis:

- **a procedure** used to remove **excess fluid or air** from the pleural space, often for diagnostic or therapeutic purposes.

⇨ Indications:

- Relief of dyspnea.
- **Diagnostic evaluation** of pleural effusion:
  - e.g., to determine causes such as infection, malignancy, or heart failure)

⇨ Pre-Procedure Nursing Interventions:

- **Verify informed** consent and physician's order.
- **Assess the patient's** respiratory status, vital signs, and oxygen saturation.
- **Review laboratory values** (e.g., coagulation profile) to reduce bleeding risk.
- Explain the procedure to the patient to alleviate anxiety

⇨ During the Procedure:

- Assist with **positioning** (typically sitting upright and leaning forward)
- Monitor the patient's vital signs and comfort level.
- **Observe any signs** of complications such as pain, coughing, or a drop in oxygen saturation

⇨ Post-Procedure Care:

- **Monitor for complications**: pneumothorax, bleeding, or pulmonary edema
- **Check vital signs** and respiratory status frequently

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- **Provide patient education** on activity restrictions and follow-up care
- Ensure that specimens collected (if diagnostic) are **properly labeled** and sent to the lab.

⇨ Complication of thoracentesis:

- Pneumothorax.

⇨ Sign of Pneumothorax:

- **Decrease** Level of alertness
- Absent breath Sound.
- Increase respiratory Rate.
- Respiratory distress) Includes **nasal flaring, accessory muscle use, intercostal retractions**, and visible difficulty breathing)
- Low oxygen saturation (SpO_2)

➢ **To Prevent air embolism when remove a Central Venus catheter:**

- Place the Patient in the Trendelenburg Position:
- This position (head down) increases central venous pressure, reducing the risk of **air entry.**
- Instruct the Patient to **Perform a Valsalva Maneuver** or Hold Their Breath: Having the patient hold their breath or perform a Valsalva maneuver.
- Apply an Occlusive Dressing Immediately:
- After removal, immediately cover the site with a sterile occlusive dressing to seal the entry site.
- Monitor the Patient Closely:
- Observe for signs of respiratory distress or cardiovascular instability which could indicate air embolism.

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- These steps are crucial to reduce the risk of air embolism, a rare but potentially life-threatening complication when removing a central venous catheter.

⇨ Prior medication on CVC:

- You **should flush** to assess potency before Medication infuses use 10 cc for flushing.

➢ Needle Liver biopsy:

- A needle liver biopsy is a **procedure where a small sample** of liver **tissue is obtained** using a needle for **diagnostic purposes**.

⇨ Pre-Procedure Nursing Actions:

- **Assess coagulation status** Check PT, INR, PTT, platelet count to ensure the **patient isn't at high risk for bleeding**.
- **Obtain informed consent** Ensure the patient understands the risks and benefits.
- **Positioning:** The patient is placed in a **supine position with the right arm raised** above the head **to** expose the liver.
- **Educate the patient** Instruct them to hold their breath during needle insertion to prevent injury.

⇨ Post-Procedure Nursing Actions:

- Positioning:
- **Immediately place the patient** on their **right side for 2–4 hours** to apply pressure to the puncture site and **reduce bleeding risk.**
- **Afterward,** the patient should **remain flat in bed for 12–24 hours** to prevent complications.
- Monitor for bleeding:

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- **Check vital signs** (watch for tachycardia & hypotension indicating hemorrhage).
- Assess the puncture site for external bleeding.
- **Monitor for signs of internal bleeding**, such as abdominal pain or distension.
- Monitor for pneumothorax:
- **Since the liver is near the lungs**, assess for shortness of breath, decreased breath sounds, or **asymmetrical chest movement** (means that **one side of the chest rises and falls differently** (less or more) than the other during breathing.)

⇨ **Avoid** increased intra-abdominal pressure:

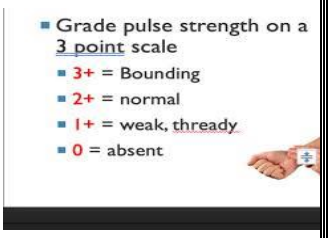
- Instruct the patient to avoid coughing, straining, or lifting heavy objects for 1–2 weeks to prevent bleeding.

⇨ Pain management:

- Mild discomfort is expected, but severe pain could indicate bleeding or bile leakage.

➢ **A scale of the Force Pulse:**

- **The pulse** is graded on a scale from 0 to 4+ to describe.
- 0: No palpable pulse
- 1+: Weak, thready pulse
- 2+: Normal pulse
- 3+: Strong pulse
- 4+: Bounding pulse



⇨ Why the Pulse Force Scale is Important for NCLEX:

- **Assessment of Circulatory Health:**

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- The pulse force gives you **valuable insight** into a patient's cardiovascular function and peripheral circulation.
- You'll need to **recognize normal and abnormal pulse** characteristics to identify conditions like shock, hypertension, heart failure, or fluid imbalance.
- **Interpreting Clinical Signs:**
- Knowing how to assess the strength of the pulse (weak, normal, or bounding) helps you **determine the severity of a patient's condition.**
- Understanding this scale helps you recognize early signs of cardiovascular or systemic issues, which can be critical for patient safety.

⇨ **Common cause Factors of False low Spo2:**

- **False low pulse oximetry (SpO_2)** readings can result from several factors that interfere with the device's ability to accurately measure oxygen saturation.

⇨ Common causes include:

- Dark Fingernail.
- Hypotension, low cardiac output
- Hypothermia, Vasopressor Medication and Cold Extremities
- Peripheral artery disease (PAD).

➢ **Insert peripheral IV:**

- **When inserting a peripheral IV,** the nurse should follow these key steps and considerations, which are frequently tested on the NCLEX:

⇨ Preparation and Equipment:

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- **Gather all** necessary supplies (IV catheter, tourniquet, antiseptic solution, gloves, gauze, tape, IV flush, etc.).
- Perform hand hygiene and wear gloves.

⇨ Patient Assessment and Site Selection:

- Assess the patient's veins for size, condition, and accessibility.
- Choose a site with good blood flow and minimal risk for complications.

⇨ Aseptic Technique:

- **Cleanse the selected** site thoroughly with an antiseptic (usually chlorhexidine or alcohol) and allow it to dry completely before insertion.

⇨ Insertion Technique:

- **Apply a tourniquet above** the selected site to engorge the vein.
- **Stabilize** the vein by **anchoring the skin.**
- **Insert** the catheter at the proper angle (typically 15-30 degrees) and advance it until blood return is seen, indicating venous access.
- **Once flashback** is noted, lower the angle and advance the catheter a short distance further, then remove the needle while leaving the catheter in place.

⇨ Securing the IV:

- **Flush the IV** with normal saline to confirm patience.
- **Secure the catheter** with appropriate dressing and tape to prevent dislodgement.

⇨ Peripheral IV catheter sites:

- Should be change usually **No More 3-4 days** unless sign of complication.

⇨ Sign of Phlebitis:

- Erythema, edema, warmth, Pain.

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⇨ Manifestation of infiltration:

- Edema, cool, Leak From the site.

⇨ Note

- Potassium is **known as Irritant Vein**, so discomfort is not a sign of infiltration.

➢ **Magnetic resonance cholangiopancreatography (MRCP):**

- **MRCP** is a non-invasive MRI scan **used to visualize the biliary** and **pancreatic ducts**.
- It helps diagnose:
    - gallstones, **bile duct obstructions**, tumors, and pancreatitis without **requiring contrast dye injections** like ERCP (Endoscopic Retrograde Cholangiopancreatography).

◊ Pre-Procedure:

- **Assess for contraindications**, no metal implants, pacemakers, or aneurysm clips (MRI safety screening required).
- **Check for pregnancy**, MRI is generally avoided in the first trimester.
- **NPO status** – The patient is usually NPO for 4–6 hours before the procedure to reduce bowel motion artifacts.
- **Remove metal objects** – No jewelry, hearing aids, or credit cards (magnetic fields may interfere).

➢ **Proper Clients positions:**

- **After Mastectomy** should be Semi Fowler position with arm elevated
- **In Case of Air embolism** must put the client in **Trendelenburg** position on the Left Side

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- **During lumber Puncture** should put the client side lying with head back and knee extended (fetal Position)
- **During Chest Tube Insertion** should put arm raised above the head and **after The Procedure** should remain the client ON **30 degrees no more** than 30 degrees
- **During Cardiac catheterization** should put the client in **supine position** in case you put the client in If Flower risk For **Hemorrhage.**
- **After liver biopsy** should put the client in **right side position for 2 hrs**.

➢ **Sputum culture:**

- **a diagnostic test** used to identify the organisms (bacteria, fungi, viruses) that are causing respiratory infections. It helps determine the best treatment, especially **the most appropriate antibiotics** or antifungals, for infections like pneumonia, tuberculosis, or bronchitis.

⇨ Purpose:

- To identify microorganisms causing respiratory infections. To help determine antibiotic sensitivity and guide the choice of effective treatment.
- To detect unusual or resistant organisms (e.g., drug-resistant tuberculosis).
- The client should **rinse the Mouth** with water before collect the sputum.
- **Avoid** Touch the inside of the Sterile container.
- Inhale deeply several Times then Cough forcefully.
- Sitting in an upright Position
- Collect it in the Morning after wake.

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➢ Circumcision:

- **Circumcision** is the surgical removal of the f**oreskin** from the penis.
- It is commonly performed in newborns for cultural, religious, or medical reasons.

⇨ Pre-Procedure:

- **Obtain** informed consent from parents.
- Ensure the infant has voided before the procedure.
- Provide pain relief – Options include Topical anesthetic cream (lidocaine).

⇨ **Assess** for contraindications Do not perform if the infant has:

- Hypospadias or epispadias (abnormal urethral openings).
- Bleeding disorders (e.g., hemophilia, low platelet count).
- Illness or premature (procedure may be delayed).

⇨ Nursing Considerations for Circumcision (NCLEX Focus)

⇨ Post-Procedure Care:

- **Monitor for bleeding** A small amount (few drops) is normal; continuous bleeding **requires immediate intervention**.
- **Apply petroleum jelly** to prevent the penis from sticking to the diaper.
- **Assess for signs of infection** – Redness, swelling, foul odor, or pus are abnormal.
- **Ensure proper** hygiene Clean with warm water; avoid alcohol wipes.
- **Monitor urination** the infant should void within 6–8 hours post-procedure.
- **Wrap the newborn** upper body in a blanket.
- **Apply of a-blanket** Can provide comfort as well as restrain to prevent injury.

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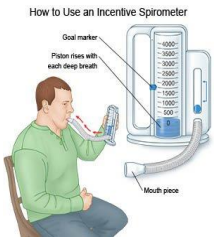
- Use Pacifiers to manage pain.
- Sterile Not Clean Teaching.

➢ Incentive spirometry:

- **a breathing exercise** device used to help patients improve lung function, especially after surgery, to prevent pneumonia and atelectasis (lung collapse).

⇨ How to Use It?

- **Sit upright** or in a semi-Fowler's position.
- **Exhale normally** and place the mouthpiece in the mouth.
- **Seal the lips** tightly on the mouthpiece.
- **Inhale deeply** until the Piston is elevated.
- Hold the breath for at least 2-3 seconds.
- Exhale Slowly around mouthpiece.
- Repeat 10 times per hour or as instructed by the healthcare provider.



⇨ Key NCLEX Points:

- **Used postoperatively** to prevent respiratory complications.
- Encourages deep breathing and effective coughing.
- Do not blow into the device; it's for inhalation only.

➢ Size of cannula

⇒**24 gauge:**

- is recommended For Children and older adult with Small, fragile vein.

⇒**20-22 gauge**

- Administer general IV fluid.

⇒**20 gauge**

- Acceptable for Blood.

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⇒**18 gauge**

- is Preferred for Blood Transfusion

⇒**14 gauge**

- Administer Fluid, drug in emergencies, Hypovolemic shock.

➢ Principles of Hearing Aid Care - NCLEX Review:

⇨ Basic Care Guidelines for Hearing Aids:

- **Turn off** the hearing aid when not in use to preserve battery life.
- **Remove the battery** if not in use for an extended period.
- **Keep the hearing aid** dry and avoid exposure to moisture (e.g., rain, showers).
- **Clean the hearing** aid regularly with a soft, dry cloth—avoid water or alcohol-based cleaners.
- **Check for earwax** buildup in the earpiece and clean it as needed. Store in a safe, dry place when not in use.
- **Avoid extreme temperatures**, as heat or cold can damage the device.
- **Adjust volume gradually** to prevent discomfort or feedback noise.
- **Do not drop the hearing aid**, as it contains delicate electronic components.
- Regularly check batteries and replace them as needed.

⇨ Key NCLEX Considerations:

- **Patients with cognitive impairment** may need assistance with hearing aid care.

⇨ If the hearing aid is not working, check if:

- The battery is properly inserted
- The device is turned on

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- There is no blockage due to earwax.
- Do not immerse the hearing aid in water or use hair spray while wearing it

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(3)

Adult Medical-Surgical Nursing

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Classification: Internal Use

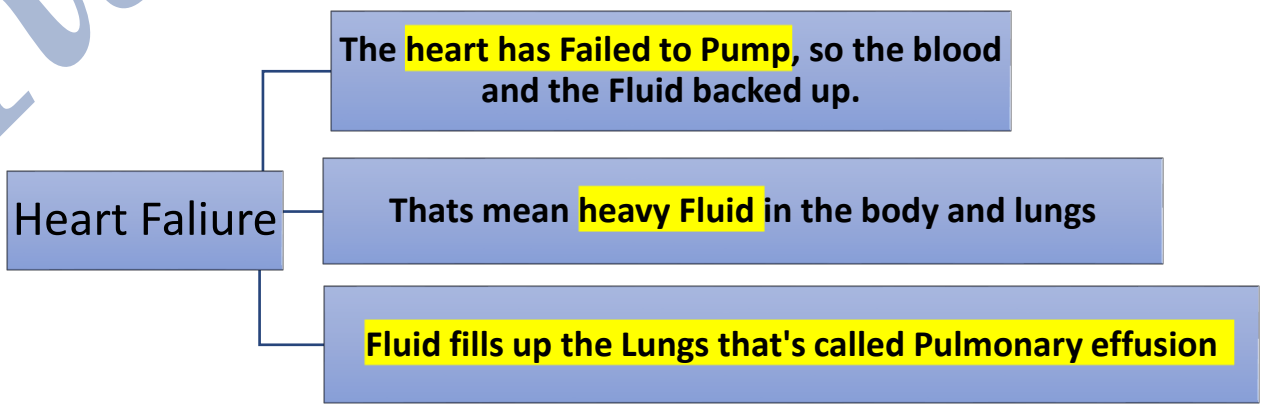
1-Cardiac

➢ **Heart:**

- The heart's main function is to **pump oxygenated blood** throughout the body and maintain adequate blood pressure.
- **Cardiac output (CO)** is the **amount of blood** the heart pumps per minute. It depends **on heart rate (HR)** and **Stroke volume (SV).**
- Stroke Volume (SV) Meaning:
- Refers to the **amount** of blood **pumped by the left ventricle of the heart** in one contraction. It is measured in **milliliters per beat** (mL/beat).
- **Cardiac output (CO) = HR × SV.**
- **Decreased cardiac output** can lead to poor tissue perfusion, causing symptoms like **dizziness,** confusion, hypotension, and weak pulses.
- **The pulse** is a primary assessment tool for evaluating **cardiac output and circulation.**

◊ Other key assessments for evaluating **cardiac output** include:

- Blood pressure (BP)
- Capillary refill time **in adults and children ≤ 2 seconds**
- Urine output (indicator of kidney perfusion), ensures **enough blood reaches the kidneys** → normal urine production.


Heart Faliure
The heart has Failed to Pump, so the blood and the Fluid backed up.
Thats mean heavy Fluid in the body and lungs
Fluid fills up the Lungs that's called Pulmonary effusion

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➢ How to Save a Client's Life in Case of Heart Failure?

◊ In an emergency related to heart failure, follow these critical steps:

◊ Assess and Identify Signs of Heart Failure:

- **Respiratory distress** (shortness of breath, crackles, pulmonary edema)
- **Weak** or rapid pulse.
- **Hypotension** or hypertension
- **Jugular vein distention** (JVD)
- **Edema and decreased** urine output
- Mental confusion (due to poor perfusion to the brain)

◊ Immediate Nursing Interventions (Prioritization):

- **Position the Patient**: Place in High Fowler's Position to improve breathing.
- **Oxygen Therapy**: Provide high-flow oxygen if oxygen saturation is low. Consider BiPAP or CPAP **if pulmonary edema is present**.

◊ Administer Medications (as ordered):

- **Diuretics (**e.g., Furosemide/Lasix).
- **Positive Inotropes** are used when the heart is **too weak to pump effectively**)e.g., Dobutamine, Digoxin).
- **Beta-blockers (if stable)** (e.g., Metoprolol)
- **Vasodilators** (e.g., Nitroglycerin)
- Monitor Vital Signs & Labs:
- BP, HR, RR, SpO_2.
- **BNP levels** (Brain Natriuretic Peptide) or **NT-proBNP** → Elevated in HF.
    - BNP:

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- If its high **indicates** some type of **heart failure.** Over 100 pg/mL may be a sign of heart failure.

- **Electrolytes** (K+, Na+), Renal function (Creatinine, BUN)

◊ Reduce Fluid Overload:

- Strict intake and output
- Fluid & sodium restriction.

◊ **Right-Sided Heart Failure (R for Rest of the body!):**

- Cause:
- **The right ventricle** fails to pump blood effectively **into the lungs**, causing blood to back up into **the systemic circulation.**

⇨ Key Signs & Symptoms:

- **Peripheral edema** (swelling in legs, ankles, feet)
- Jugular vein distention (JVD).
- Ascites (fluid in the abdomen).
- Massive weight gains due to fluid retention
- Clear lungs (unlike left-sided failure)

◊ **Left-Sided Heart Failure (L for Lungs!):**

⇨ Cause:

- **The left ventricle fails** to pump blood effectively **to the body,** causing blood to back up **into the lungs**.

⇨ Key Signs & Symptoms:

- Pulmonary congestion & edema (fluid in the lungs)
- Crackles/rales on auscultation

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Classification: Internal Use

- **Dyspnea** (shortness of breath, especially when lying down - orthopnea)
- Pink, frothy sputum.
- Sudden shortness of breath at night
- So, what kills first?
- **Left side heart failure**, Fluid in the lungs and can lead to **hypoxia.**

◊ **Some examples:**

⇨ A nurse is assessing a client **with newly diagnosed heart failure**. The client reports **shortness of breath while lying flat** and a persistent cough with pink, frothy sputum. Which type of heart failure does the nurse suspect?

- A. Right-sided heart failure
- B. Left-sided heart failure
- C. Both left- and right-sided heart failure
- D. Pulmonary hypertension.

⇨ A nurse is providing discharge teaching for a client with chronic heart failure. Which of the following statements by the client indicates a need for further teaching?

- A. "I will weigh myself every morning before breakfast."
- B. "I will call my doctor if I gain 5 pounds in one week."
- “I will drink at least 3 liters of water every day to stay hydrated."
- D. "I will monitor my sodium intake to prevent fluid retention

⇨ Which Client is priority? Always think who dies first?

1. A client with **CHF** was 9 to Pain after Broken leg « **X** » **checks the other)**

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Classification: Internal Use

2. A client with HF who **suddenly** has Weight gained **two Pound in 4hrs** (**X**) this patient is at risk but not priority comparing with another one. (**check the other)**
3. A Client with HF took **over the counter Flu medication** with **worsening** crackles and **new** pink sputum (✓).
4. **Teaching during discharge:**

◊ **Medications to Avoid:**

- **Over the Counter (OTC) Medications** These can cause fluid retention and worsen heart failure symptoms.: **(Drugs** that can be purchased without a prescription. They are typically used for the treatment of common, mild health issues like headaches, colds, and minor aches and pains).
    - **As example:** Ibuprofen (Advil, Motrin), and Naproxen (Aleve)
- **Cough Suppressants** & Antihistamines.
- **Antacids:** Avoid calcium-based antacids like Tums.

◊ Dietary Recommendations:

- **Low Sodium Diet:** Avoid processed foods, canned soups, and fast food.
- **Fluid Restriction:** Follow the doctor's advice on daily fluid intake.
- **Limit Caffeine & Alcohol:** Can contribute to dehydration and irregular heart rhythms.

◊ Lifestyle Modifications:

- **Daily Weighing:** Report sudden weight gain (2-3 lbs in a day or 5 lbs in a week).
- Monitor Symptoms: Watch for increased shortness of breath, swelling, or fatigue.
- Exercise Cautiously.

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- Medication Adherence: Take prescribed medications as directed and never skip doses.

➢ Hypertension:

- Defined as **a BP ≥ 140/90** mmHg in most cases.
- **Can be classified** as primary (essential) or secondary (caused by another condition like kidney disease).

⇨ Complications of Hypertension (Target Organ Damage - TOD):

- **Brain: Stroke (CVA),** transient ischemic attack (TIA), aneurysm.
- **Heart: Left ventricular hypertrophy**, heart failure, myocardial infarction (MI).
- **Kidneys:** Chronic kidney disease (CKD), renal failure.
- Eyes: Hypertensive retinopathy, vision loss.

⇨ Signs & Symptoms:

- Often called the **"silent killer"** because it may be asymptomatic.
- Severe cases: Headaches, dizziness, blurred vision, chest pain, nosebleeds.

⇨ Nursing Interventions:

- Monitor blood pressure regularly.
- Assess for signs of complications (e.g., stroke symptoms, chest pain, kidney dysfunction).

○ Encourage lifestyle modifications:

- Low sodium.
- Regular exercise.
- Smoking cessation & alcohol limitation.
- Stress management.
- Sign and symptoms of Hypertensive:

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- The first Sign for Hypertension is **Headache,** From Punching pounding pressure it will Cause headache.

⇨ What Causes hypertension?

- Stress, **smoking**, **Alcohol, Coffee.**
- **Obesity, oral Contraceptive (birth control).**
- Diet high Sodium.
- Meats which add **cholesterol** to Blood Vessel Making these **Blood Vessel narrower** and **increasing pressure.**
- **African men** and old age
- **Cholesterol and hypertension** are closely related, because high cholesterol leads to a**therosclerosis** (plaque buildup in arteries), making it harder for **blood to flow,** which increases blood pressure.

⇨ Effects of High Cholesterol on Hypertension:

◊ **Atherosclerosis:**

- Excess cholesterol **leads to fatty plaque buildup** in arteries, this narrows and stiffens the arteries, making **it harder for blood to flow.**

◊ **Increased Risk of Stroke & Myocardial Infarction (MI):**

- Plaques can **rupture, forming clots** that block arteries. This can result in heart attacks (MI) or strokes, especially when combined with high BP.

◊ How do these values affect heart health?

◊ **Total Cholesterol:**

- Normal level: Less than 200 mg/dL.
- What is total cholesterol?
- **Cholesterol** is a waxy substance found in your blood. It can be either **good cholesterol (HDL) or bad cholesterol (LDL).**

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- Effect: High total cholesterol increases the risk of blocked arteries, which can lead to heart attacks or strokes.

◊ Low-Density Lipoprotein (LDL - "Bad Cholesterol"):

- Normal level: Less than 100 mg/dL.
- What is LDL?
- **Known as "bad cholesterol**," high levels of LDL can lead to the **build-up of fat in the arteries,** causing artery blockages, which may result in heart attacks or strokes.
- Effect: **The higher the LDL levels**, the greater the risk of heart disease.

◊ **High-Density Lipoprotein (HDL - "Good Cholesterol"):**

- **Normal level:** More than 40 mg/dL.
- What is HDL? Known as "good cholesterol," **HDL helps remove** bad cholesterol (LDL) **from the blood,** thus reducing the risk of heart disease.
- Effect: **Higher HDL levels provide** better protection against heart disease.

◊ **Triglycerides:**

- Normal level: Less than 150 mg/dL.

◊ What are triglycerides?

- **They are a type of fat** found in your blood. After you eat, the **body converts any calories it doesn't need** into **triglycerides**, which are then stored in **fat cells**. High levels of triglycerides can increase the risk of **heart disease and stroke**.
- Effect: High triglyceride levels increase the risk of stroke and heart attacks.

◊ **Hypertensive crisis:**

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- **Elevated blood pressure > 180** in systolic **and >120 diastolic**.
- May have symptoms of **hypertensive encephalopathy:**
    - a condition characterized by **brain dysfunction** caused by extremely high blood pressure , include **severe headache**, confusion, nausea, and seizure altered **mental status and risk for hemorrhagic stroke** and kidney failure.
- The nurse should prioritize **neurologic assessment** and the **level of consciousness.**

⇨ How can we save a client who has High Blood Pressure?

- B→ Beta blockers: As atenolol, Labetalol for **Low heart rate, Low BP.**
- C→ Calcium channel blockers: Calm the heart.
    - As **Cardizem**, is calm the heart, BP, Hr.
    - **Nifedipine**, decline the blood pressure, also treats severe chest pain.
    - **Verapamil** (BP, Heart arrhythmias)
    - D→ Dilators
- As Vasodilators common one **Nitroglycerin.**

➢ **Cardiac drugs:**

◊ **A→ Atropine**:

- Make the **High Heart rate very high** it put the heart rate high and after give will see **Normal sinus rhythm there is** NO FAST RHYTHM.

◊ What is indicated to give atropine?

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- Atropine is an **anticholinergic medication** that blocks the **parasympathetic nervous system (PNS),** leading to **increased heart rate and decreased secretions**.
- **Symptomatic Bradycardia:**
  - HR < 60 bpm with symptoms like dizziness, hypotension, or syncope) → **First-line treatment to increase heart rate.**
- **Preoperative Medication** → Decreases saliva & airway secretions to prevent aspiration.

◊ **A→ Adenosine** treat of emergency during **SVT**.

➢ **Medications for Ventricular Arrhythmias:**

- **Some medications are used** to lower heart rate and stabilize ventricular rhythms in conditions like **ventricular fibrillation (VF)** and **ventricular tachycardia (VT).**
- **First-Line Medications for Ventricular Arrhythmias:**

◊ Amiodarone Used for:

- ◊ Ventricular fibrillation (VF)
- ◊ Pulseless Ventricular Tachycardia (VT), Stable VT with a pulse
- ◊ Atrial fibrillation (AF)

◊ Lidocaine Used for:

- Ventricular arrhythmias
- Especially effective in **VT,** particularly post-myocardial infarction (MI)

◊ Beta-Blockers (e.g., Metoprolol, Esmolol) Function:

- Reduce heart rate
- Prevent recurrence of ventricular arrhythmias

◊ Procainamide Used for:

- Ventricular tachycardia (VT)

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- Atrial arrhythmias (e.g., AF)

◊ Magnesium Sulfate Specifically used for:

- Torsades de Pointes (a dangerous form of polymorphic VT often linked to prolonged QT interval).

◊ **Medication work to Lower Blood Pressure and HR:**

- A → ACES and ARBS.
- B → Beta Blockers
- C → Calcium channel blockers.
- **D → As (**Diuretics), (Digoxin), and (Dilators) like (Vasodilator forms in Nitroglycerin and isosorbide).

◊ Every single one of these drugs drops the BP except **Digoxin Work on** the heart rate mainly and not the **Blood pressure**.

◊ NOTE:

- always **use slow position changes.**
- **Assess heart rate and blood pressure before giving.**

➢ **Top Safety Precautions for A, B, C, D drugs:**

◊ **First A→ACES:**

- Like **Lisinopril** is act on **low blood Pressure Not heart rate**
- Lisinopril is the primary Choice.

◊ Client on ACE Inhibitors:

- Typically, **may get the client having cough,** this is a common side effect, and many Clients don't tolerate it well. **So,** they switch to the Second Choice, **ARBs like Losarta**n and drop massively blood pressure leading to **dizziness and fall.**
- Be sure to monitor these Clients closely any client takes a drug for the First time.

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◊ **ARBS:**

- Low Blood Pressure like **Losartan** act on low blood Pressure not heart rate.
- Losartan comes second if **Lisinopril** does not work.
- Always think about Safety Concept of lowering Blood Pressure
- **Both** avoid to Pregnant Client.

◊ Deadly side effect of ACE and ARBs:

- **Angioedema,** tongue swells up. It's a big airway obstruction.
- **ACES and ARBS** add Potassium to the body, so we see Hyperkalemia over 5.0. **Losartan or Lisinopril** should not be used with potassium or other medications that increase potassium (such as **potassium-sparing diuretics**), because of the risk of hyperkalemia.
- Severe hypotension

◊ **Second B→Beta Blockers**

- End Of (ol) like propran**olol** and aten**olol**.
- **Low heart rate and Low Blood Pressure** Always measure both before giving.
- Avoid for client with heart failure, COPD and Asthma.

◊ Deadly side effects For Beta Blockers.

- Brady Cardia, and Low Blood pressure.
- Breathing problems, **Bronchospasm and wheezing** so always hold for a client **Asthma and COPD**.
- **Worsening to the client with heart Failure** So, Hold for Client with End-Stage or worsening heart failure:
    - **focus with these symptoms'** new edema, sudden crackle sound in Lungs, Rapid weight gain.

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- **Hypoglycemia Unawareness (**Especially in Diabetics!) (e.g., tachycardia, tremors).
    - NCLEX TIP: Monitor blood glucose closely in diabetic patients!
- **Rebound Hypertension** (If Stopped Suddenly)"
    - Always taper beta-blockers gradually! Stopping suddenly can cause severe hypertension & tachycardia.

◊ **Third, Calcium Channel Blockers:**

◊ Dihydropyridines (Vasodilators - Lower BP only!)

- **Examples: Nifedipine.**
- Main Effect: Lowers BP (vasodilation) but does NOT affect HR
- NCLEX TIP: Used for hypertension, NOT arrhythmias!

◊ Non-Dihydropyridines (Affect HR & BP!)

- **Examples: Verapamil**
- Main Effect: Lowers BP & HR (affects heart contractility and rhythm)

◊ NCLEX TIP:

- Used for atrial fibrillation, angina, and hypertension.
- Deadly Side Effects of calcium Channel Blockers:
- **Verapamil causes low HR & BP**
    - NCLEX TIP: Hold if HR < 60 bpm or BP < 90 mmHg systolic!

◊ **Reflex Tachycardia (With Dihydropyridines!) Nifedipine:**

- Nifedipine can cause sudden BP drop → reflex tachycardia
- NCLEX TIP: Avoid in unstable angina & heart failure!

◊ **Peripheral Edema (Common!):**

- NCLEX TIP: Teach patients to elevate legs & monitor for swelling!

◊ **Constipation (Especially Verapamil!)**

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- NCLEX TIP: Encourage high-fiber diet & fluids!

◊ **Heart Failure Worsening!**

- NCLEX TIP: Avoid patients with severe heart failure (especially verapamil & diltiazem)!

➢ **Fourth (D):**

- **1-Digoxin:**
- **Drops the heart rate** Not the **Blood pressure.**
- **We must assess apical pulse** before giving digoxin we have to listen for a full 60 seconds and hold if less than 60 beats per minute.
- Toxicity:
- Over 2.0 means **Digoxin Toxicity.**
- **Low potassium (hypokalemia)** increases the risk **for Digoxin Toxicity.**
    - **Low Potassium Less than 3.5** is another risk factor that increases the risk for digoxin toxicity (3.5- 5). Digoxin **does not lower** Potassium or even waste Potassium. It's not a potassium waster only means that **Low potassium increase risk for Digoxin Toxicity.**

◊ Sign and Symptoms of toxicity digoxin

- Dizziness, difficulty reading.

◊ **Second (D).**

- **2-Diuretics:**
- Think the body is dried, from both **Potassium and Fluid** and they are both **Potassium Wasters and Potassium spare.**

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Classification: Internal Use

- The first type of diuretics (Potassium Wasters) in this case we must monitor for Low Potassium less than 3.5.
- **Furosemide**
- **Hydrochlorothiazide.**
- **Bumetanide.**
- Teaching For clients who take **Potassium Wasters** we have teach clients Potassium less than 3.5:
- **You must Eat Potassium rich foods as** green Leafy veggies, avocados like Melons, Citrus, bananas.
- **Encourage him to use Salt Substitutes as low-sodium salt**, is a low-sodium alternative to edible salt (table salt) **marketed to reduce the risk of high blood pressure** and cardiovascular disease associated with a **high intake of sodium chloride.**
- **Avoid** licorice **root** like licorice Candy can lower Potassium.
- **The second type of diuretics is (potassium sparing):**
- Like **Spironolactone.**
- **Always monitor for high Potassium over 5.0**.
- **Peaked T wave and ST elevation** when we have high Potassium and always put him in a monitor.
- **Avoid Potassium-rich foods** like Salt substitutes and green Leafy Veggies, Melons, and avocados.

◊ General Safety Tips FOR Diuretics:

- Give in morning.
- Client prescribed **Spironolactone** should Slow Position changes. One of its common side effects is **Orthostatic hypotension** – a sudden drop in blood pressure when standing up too quickly.

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Classification: Internal Use

- Daily weights.
- Any Sudden **Weigh gain two or Three Pounds in 24hrs OR Five Pounds in seven days.** Rapid Weight gain typically means water gain so if there is weight gain although he takes diuretics he should **increase the dose for diuretics**.

◊ **3-(D) is Vasodilators:**

- That help to **open the blood vessels** and **Lower In blood pressure.**
  - **Nitroglycerin**
  - **Nitroprusside**
  - **Isosorbide.**
- Nitro makes the **blood Pressure Low** this client at risk For Falling So we must teach him **Slow Position Changes.**

◊ Client presented to **ER department with Chest** Pain Before giving Nitro, what should the nurse ask if the Client is talking to prevent dangerously low BP.

- We must ask him about **Sildenafil** because it's **a Vasodilator.**
- When do we stop Nitro?
- For any blood pressure **below 100 systolic**.
- If drops by **30 points** or more for systolic because we need blood pressure **low down slowly.**

◊ **Cardiac Arrhythmias Associated with Acute Cardiac Conditions (e.g., Myocardial Infarction):**

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- **Myocardial Infarction (MI**) is not an arrhythmia itself, but it is a serious acute **cardiac condition** that can **lead to or trigger** life-threatening arrhythmia like **VF and VT.**

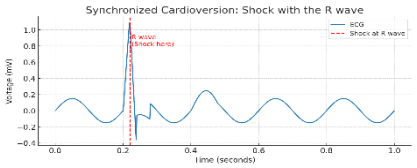
◊ Common Arrhythmias:

- Ventricular Fibrillation **(VF)**
- Ventricular **Tachycardia (VT)**
- Supraventricular Tachycardia (SVT).

➢ Defibrillator (D. Fib):

◊ Unsynchronized Cardioversion:

- **An immediate electrical shock** delivered at any point in the cardiac cycle (not synchronized with the ECG).
- **Ventricle Fibrillation VF = No Pulse** and **Ventricular Tachycardia Pulseless.**
- Notes:
- **IV Sedation** is not necessary when defibrillators who are experiencing **VF and unconscious** its often-prior administration to **synchronized cardioversion.**



◊ Synchronized Cardioversion:

- **A controlled electrical shock** delivered to the heart in **sync with the R wave** of the ECG to avoid **shocking during the vulnerable T wave,** which could cause dangerous rhythms.
- **Performed** on patients that still **have a pulse** but are hemodynamically unstable as:
- Supraventricular Tachycardia (SVT) (unstable)
- Atrial Fibrillation (AF)

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Classification: Internal Use

- Atrial Flutter
- Ventricular Tachycardia **with a pulse (unstable).**
- NCLEX TIPS:
- Patient usually **has a pulse but is unstable** (e.g., low BP, chest pain).
- **IV sedation is often given** if the patient is conscious.
- Must press the **"Sync"** button on defibrillator before delivery (The **"Sync" function ensures the shock is delivered specifically on the R wave of the QRS complex — *not* on the T wave) .**

⇨ Steps to preform defibrillation.

- OPEN the defibrillator.
- Remove transdermal medication Patches from Client
- Place the defibrillator pads on Client's chest.
- Continuous chest Compression until AED is ready.
- Charge the defibrillator.
- Before delivering the shock ensure that area is clear.
- Deliver shock.
- Immediate resume **chest compression**.

◊ **Intervention for a client with Cardiac arrest:**

◊ **Assess the Situation:**

- First, check for responsiveness and pulse (if the patient is unresponsive and pulseless, proceed with CPR).

◊ **Activate the Emergency Response System:**

- Call for help or activate the emergency response system to ensure advanced care is on the way.
- Obtain a defibrillator **(AED) if available.**

◊ **Start CPR Immediately:**

- Begin chest compressions immediately without delay.

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◊ **Quality chest compressions:**

- Compression rate: 100-120 per minute.
- Compression depth: 5-6 cm.
- 30 compressions followed by 2 breaths.
- Perform CPR in cycles: 30 compressions followed by 2 breaths (adult CPR).

◊ **Open Airway Using Jaw Thrust (if needed):**

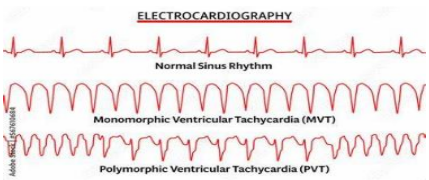
- **Jaw thrust maneuver** can be used to open the airway in a suspected **spinal injury.**
- Alternatively, if there is no spinal injury suspected, **the head-tilt, chin-lift** method is used.

◊ **After Two Minutes of CPR (or 5 cycles):**

- After two minutes (or 5 cycles of 30:2 compressions to breaths), reassess the patient's rhythm with the defibrillator (AED).
- Place Defibrillator Pads: Right upper chest and left lateral rib (or follow the specific placement directions on the AED).

◊ **Analyze the Rhythm:**

- The **defibrillator will analyze** the heart rhythm. If shock is advised, deliver the shock according to the defibrillator instructions.
- If no shock is advised, **continue CPR** (start with chest compressions immediately).



➢ **Ventricular tachycardia (VT or V-tach):**

- Ventricular tachycardia (VT or V-Tach) is **a fast, abnormal heart rhythm (arrhythmia)** that **originates in the ventricles (lower chambers of the heart).** which can make the **heart pump blood** ineffectively or stop pumping altogether.

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- If sustained, VT can lead to life-threatening conditions like **Ventricular fibrillation and Sudden cardiac arrest.**

◊ Causes of Ventricular Tachycardia:

- **Coronary artery disease (CAD)** – Reduced blood flow to the heart muscle.
- **Previous heart attack (Myocardial infarction**) – Causes scar tissue that disrupts normal electrical signals.
- **Cardiomyopathy** – a disease that weakens the heart muscle
- **Heart failure** – Increases the risk of electrical disturbances.
- **Electrolyte imbalances** – Abnormal potassium, calcium, or magnesium levels.
- **Certain medications or stimulants** – Including caffeine, alcohol, and illicit drugs.

◊ VT symptoms:

- **Palpitations** – Rapid, pounding heartbeats.
- **Dizziness or lightheadedness** – Due to reduced blood flow.
- **Shortness of breath** – The heart cannot pump effectively.
- Chest pain (angina) – If VT occurs due to coronary artery disease.
- **Loss of consciousness or collapse** – In severe cases, leading to sudden cardiac arrest.

◊ Diagnosis of Ventricular Tachycardia:

- **Electrocardiogram (ECG/EKG**) – Shows a fast, regular rhythm with wide QRS complexes.
- **Holter monitor** – Detects intermittent episodes of VT.
- **Echocardiogram** – Evaluates heart structure and function.

◊ **Treatment for Ventricular Tachycardia:**

◊ Treatment depends on whether the patient:

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- Has **a pulse or no pulse**?
- Is **stable or unstable**?

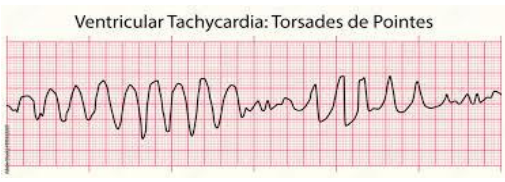
◊ **First, VT with a Pulse:**

- **If Unstable** (Signs: low BP, altered mental status, chest pain, signs of shock):
- **Treatment:**
- Synchronized Cardioversion (priority)
- **If Stable Normal** BP, alert, no severe symptoms:
- First-line: Antiarrhythmic Medication:
  - ◊ Amiodarone
  - ◊ Lidocaine
  - ◊ Procainamide
- If medications fail or **patient becomes unstable:**
  - ◊ **Synchronized Cardioversion**

◊ **Second, VT Pulseless (VT without a Pulse / Cardiac Arrest)**

- Emergency Actions:
- Start CPR Immediately
- Defibrillation (unsynchronized shock)
- Follow ACLS Protocol:
- Give Epinephrine every 3–5 minutes
- Continue CPR + shock as needed
- Pulseless VT is treated the same way as Ventricular Fibrillation **(VF).**

➢ **Polymorphic Ventricular Tachycardia:**



- What is it?
- **Ventricular Tachycardia** = A fast heart rhythm starting from the ventricles.

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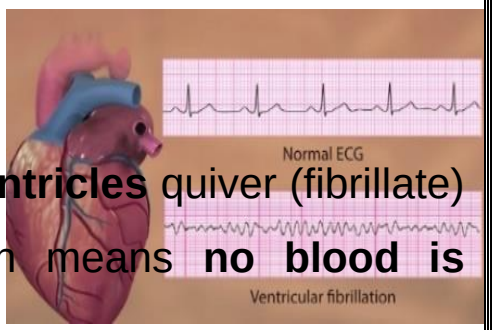
- **Polymorphic** = The QRS shape changes **from beat to beat** (not uniform).
- The most famous type is **Torsades de Pointes** — looks like the ECG waves are twisting up and down.
- Causes:
- Low magnesium (Hypomagnesemia)
- Low potassium (Hypokalemia)
- Drugs that **prolong the QT interval** (some antiarrhythmics, certain antibiotics, antipsychotics)
- Symptoms:
- Dizziness
- Palpitations
- Fainting
- Can progress to pulseless arrest
- NCLEX Management:
- **If pulseless**:
    - ◊ Immediate Defibrillation.
- **If pulse present:**
    - ◊ Give IV Magnesium Sulfate immediately (first line for Torsades).
    - ◊ Correct potassium & magnesium levels.
    - ◊ Stop any QT-prolonging drugs.

➢ **Ventricular Fibrillation (VF)**:



- a life-threatening heart rhythm where the **ventricles** quiver (fibrillate) instead of **contracting effectively**, which means **no blood is pumped** and no pulse is present.

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- This prevents the heart from **pumping blood to the body and brain**, leading to **sudden cardiac** arrest if not treated immediately.

◊ VF can occur due to several factors, including:

- **Coronary artery disease (CAD)** – Blocked arteries reduce blood flow to the heart.
- **Heart attack (Myocardial infarction)** – Can trigger electrical disturbances in the heart.
- **Electrolyte imbalances** – Abnormal **potassium, calcium**, or **magnesium** levels can disrupt heart function.
- **Congenital heart defects** – Some people are born with conditions that increase the risk of VF.
- Previous history of **ventricular arrhythmias**.

◊ Symptoms of Ventricular Fibrillation:

- **Loss of consciousness** – The brain is deprived of oxygen.
- **No pulse or heartbeat** – The heart stops effectively pumping blood.
- Collapse or sudden cardiac arrest – Without immediate intervention, VF is fatal within minutes.

◊ VF is diagnosed using:

- **Electrocardiogram (**ECG/EKG) – Shows disorganized, rapid electrical activity.
- **Blood tests** – To check electrolyte levels and heart enzymes.
- **Echocardiogram** – Evaluates heart structure and function
- VF requires emergency medical care:
- **Cardiopulmonary Resuscitation (CPR**) – Keeps blood flowing to vital organs.

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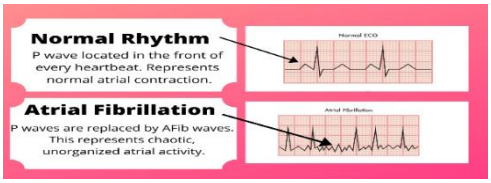
- **Defibrillation (Electric Shock Therapy)** – Uses an **automated external defibrillator (AED)** or **manual defibrillator** to restore normal rhythm.
- **Medications** – Epinephrine, amiodarone, or lidocaine may be used to stabilize the heart.
- **Implantable Cardioverter Defibrillator** (ICD) – **A device implanted** in high-risk patients to prevent future episodes. (ICD **controls the heartbeat** by **delivering shocks** to the heart when the device detects an **irregular heartbeat.)**
- Prevention:
- **Managing heart disease** – **Controlling blood pressure**, cholesterol, and diabetes.
- **Lifestyle changes** – Healthy diet, exercise, quitting smoking.
- **Medications** – Beta-blockers or antiarrhythmic drugs for high-risk patients.
- **ICD implantation** – For patients with a high risk of recurrent VF.


Normal Rhythm
P wave located in the front of every heartbeat. Represents normal atrial contraction.
Atrial Fibrillation
P waves are replaced by AFib waves. This represents chaotic, unorganized atrial activity.

➢ Atrial Fibrillation (AFib):

- is an abnormal rhythm **where the atria** quiver instead of contracting effectively, causing **irregular and often rapid** ventricular response. This increases the risk of **blood clots and stroke.**
- Common Postoperative Complication: AF is a frequent cardiac arrhythmia that can occur after Coronary Artery Bypass Grafting (CABG) surgery.

⇨ ECG Characteristics:

- Absence of P waves
- Irregularly irregular rhythm

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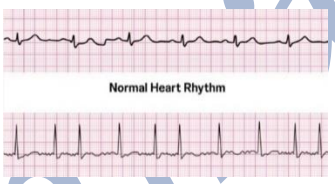
⇨ Management:

- Beta blockers: Used to control heart rate and prevent further episodes.
- Digoxin: May be used for **rate control**, especially in patients with heart failure or when beta **blockers are contraindicated.**

⇨ Indication Intervention Follow, CABG"



- **Cover** Client with warm Blanket:
- **Blood pressure** monitor.
- **Notify** health Care if chest drainage is more than 100-hr.
- **Assess** The Pedal Pulse Not Femoral Pulse.
- Remove dressing only after 24 hr. From Surgery. You can assess the dressing drainage and amount from the chest site **No need to remove it.**

◊ Following CABG:

- The Client at risk for **Bleeding and Fluid accumulation**.
- **Hypotension** may indicate progression to life threats in Hemorrhage or **Cardiac Tamponed** (a medical emergency that takes place when abnormal amounts of fluid **accumulate in the pericardial**)

◊ Discharge teaching for a client who did Coronary artery bypass surgery operation (CABG):

- Client Can do sex if he can be able to walk **one Block** or **climb 2 Flight of stairs** without Symptoms Chest Pain, shortness of Breath
- Notify Redness, drainage at the incision, fever swelling.
- **Avoid lifting** objects weights in 5 L.B (2.56 kg) until approve from HCP.
- Take a shower **without soaking chest and leg incision**.
- **No Driving** For 4-6 Week or until approve HCP.

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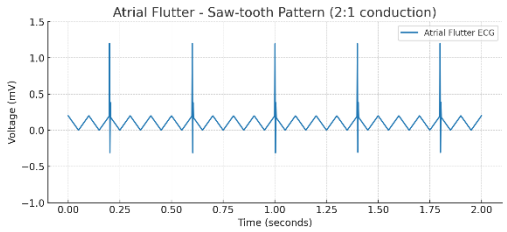
- The Nurse should First teach the Client that **Pain from Incisions between the rips May be sever** Then, the nurse should encourage the Client to **Keep taking pain Medication Before the Pain is too Intestine.**
- also instruct To, Cough, breathe deeply **While Splinting The chest**
- **with** a pillow and use an **incentive spirometer Routinely 2 hrs**.

- **Key Difference is the location and impact:**
- **AFib** → Quivering is in the **atria** → blood isn't pumped efficiently from the **atria to the ventricles** → risk of clots and stroke.
- **VFib** → Quivering is in the **ventricles** → **no blood is pumped at all** to the body → immediate cardiac arrest

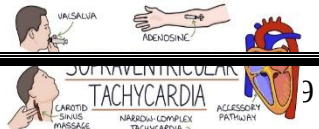
➢ Atrial Flutter (AFlutter):

- is an **abnormal heart rhythm** where the **atria beat very fast** but in a regular pattern, usually around 250–350 beats per minute**.**
- Symptoms:
- Palpitations
- Shortness of breath
- Dizziness or lightheadedness



◊ Management:

- **Stable AFlutter:**
- Rate control: Beta-blockers or calcium channel blockers
- Rhythm control: Antiarrhythmic drugs or electrical cardioversion
- Anticoagulation: If at risk for thromboembolism (similar to AFib)
- **Unstable AFlutter** (low BP, chest pain, altered mental status, shock signs):



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- Immediate synchronized cardioversion.

➢ Supraventricular tachycardia (SVT):

- an abnormally fast heart rhythm that starts **above the ventricles** (in the atria or AV node). It makes the heartbeat very quickly, often **150–250 beats per minute** and can reduce how well the heart pumps blood.
- Causes of Supraventricular Tachycardia:
- Excessive caffeine, alcohol, or stimulant use
- Stress and anxiety
- Electrolyte imbalances
- Heart disease or structural abnormalities
- Hyperthyroidism (overactive thyroid)
- Congenital heart conditions (e.g., Wolff-Parkinson-White syndrome)

◊ Symptoms of Supraventricular Tachycardia:

- Sudden onset of rapid heartbeats (palpitations)
- Dizziness or lightheadedness.
- Shortness of breath.
- Chest discomfort or pain.
- Fatigue.
- Fainting (syncope) in severe cases.

◊ Diagnosis of Supraventricular Tachycardia:

- Electrocardiogram (ECG/EKG) – Identifies the fast, regular rhythm
- Holter monitor – Records heart activity over 24-48 hours.

◊ Treatment

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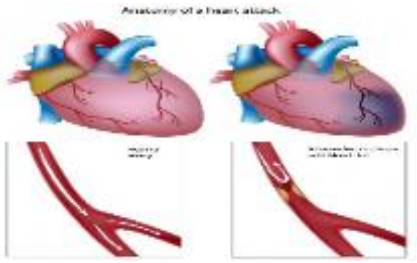
- **First intervention**, Vagal maneuver such as Valsalva maneuver (a breathing exercise used to slow down your heart rate), coughing, Carotid message, and Bear down.
- **Second intervention**, Adenosine, it's very short half-life may be given twice. Slow down heart rate.
- **Beta Blockers**, Calcium channel blockers, amiodarone can also be considered alternative if vagal Manager and drug therapy unsuccessful.

⇨ Note:

- **The Valsalva maneuver** is one of several simple physical actions called vagal maneuvers.

⇨ Long-Term Treatment:

- Lifestyle modifications – Avoiding triggers like caffeine and stress.
- Medications – Beta-blockers or calcium channel blockers to prevent episodes.



➢ **MI and ANGINA:**

➢ **Angina:**

- Chest pain occurs due to myocardial ischemia caused by **obstruction of the coronary** arteries or **coronary artery vasospasm** (temporary narrowing of coronary vessels) .
- When a client **experiences chest pain**:
  - Immediate nursing interventions should focus on assessing the pain, stabilizing the patient, and **preventing complications like myocardial infarction (MI).**

∇ **Types of Angina:**

◊ **1-Stable Angina (Exertional Angina):**

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- **Cause:**
- **Myocardial ischemia (**A reduced blood flow (and thus oxygen supply) to the heart muscle (myocardium), usually due to partial or complete blockage of the coronary arteries) from **atherosclerosis plaque (fat, cholesterol, calcium, and other substances) build up inside the walls of arteries.)**
- Onset:
    - triggered by physical exertion, emotional stress, cold weather, or heavy meals.
- Pain Characteristics:
- Pressure, heaviness, squeezing, or burning sensation.
- Usually substernal, may radiate to **jaw, neck, shoulders, or left arm**.
- Duration**:** < 15 minutes.
- **Relief:**
    - Rest or nitroglycerin resolves pain by reducing myocardial oxygen demand (**making the heart need less oxygen** by decreasing how hard it works) **or dilating coronary vessels.**
- **ECG Findings:**
    - Usually normal at rest; **transient ST-segment depression** or **T-wave inversion** during episode.

◊ Nursing Priorities (NCLEX Focus):

- Encourage **pacing activities** and avoiding triggers.
- **Teach nitroglycerin protocol**:
    - up to 3 doses, 5 minutes apart
    - call EMS if pain persists after the first dose.
- Lifestyle modifications:
    - low-fat diet, smoking cessation, exercise program per provider.

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∇ 2. Unstable Angina (Pre-Infarction Angina):

- A type of **acute coronary syndrome** where a **ruptured plaque** causes a **partial blockage of a coronary artery,** leading to reduced blood flow and ischemia, but without **permanent myocardial cell death**.
- Onset:
- Occurs at **rest or with minimal exertion**, unpredictable pattern.
- Pain Characteristics:
- More severe, prolonged, and frequent than stable angina.
- Not relieved by rest or nitroglycerin.
- May radiate to jaw, neck, shoulders, or arms.
- Duration: Usually, > 15 minutes.

◊ Risk:

- High risk of progression to **myocardial infarction within hours to days.**
- ECG Findings:
    - ST-segment depression or T-wave inversion (**no ST elevation);** cardiac enzymes remain normal initially.

◊ Sign and Symptoms:

- Chest pain:
    - Occurs at rest or with minimal exertion.
    - More severe, prolonged (>15 minutes), and frequent than stable angina.
    - Not relieved **by rest or nitroglycerin.**
    - May radiate to jaw, neck, shoulders, or arms.
- Associated symptoms (due to reduced cardiac output & ischemia):
    - Dyspnea (shortness of breath)

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  - Diaphoresis (sweating)
  - Nausea or vomiting
  - Fatigue or weakness
  - Lightheadedness or syncope
- Vital signs:
  - Possible tachycardia, hypotension, or hypertension during pain episode.

◊ Nursing Interventions:

- Immediate Pain & Oxygenation Management:
- Administer sublingual **nitroglycerin** (reduce chest pain & improve blood flow).
- Provide **oxygen** if SpO_2 < 90%.
- If pain persists prepare to administer **aspirin** and **morphine**.
- Assessment:
- Assess **chest pain characteristics** (location, duration, intensity, radiation).
- Obtain a **12-lead ECG** (to detect ischemia or infarction).
- Monitor **vital signs** (BP, HR, RR, SpO_2).
- Positioning & Comfort:
- Assist the client to sit in a **semi-Fowler's or chair position** (reduces cardiac workload).
- **Reassure the patient** to decrease anxiety and cardiac workload.

◊ Medications for Angina / CAD Prevention:

- **Isosorbide (Long-acting Nitrate):**
- **Purpose:** Prevents angina attacks.
- **Mechanism:** Dilates coronary arteries → increases oxygen supply & decreases cardiac workload.

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Classification: Internal Use

- **Atorvastatin (Statin):**
- **Purpose:** Lowers cholesterol.
- **Mechanism:** Reduces LDL & stabilizes plaques → decreases risk of CAD progression.

∇ MI (Heart Attack):

- MI occurs when a **coronary artery is completely or nearly completely** blocked, leading to irreversible damage to the heart muscle.

◊ Angina:

- is temporary **chest pain due to reduced blood flow**, but it doesn't cause permanent damage.
- Angina is **chest pain or discomfort due** to transient reduced blood flow to the heart muscle, often triggered by **physical activity or stress.**

◊ Coronary artery:

- **Transport** Oxygenated Blood to the heart muscle. **The heart requires** a **Continues Supply of oxygen to function** much like any other Tissue. So, simply think, without oxygen do you think the heart can really Function Properly.
  - No, Cannot and the Client will be suffering from Chest Pain from lack of oxygen this Chest Pain known as angina.

◊ Myocardial infarction (MI):

- **Myocardial infarction (MI**), commonly known as a heart attack, occurs when blood flow to a part of the heart muscle is blocked, leading to **ischemia and necrosis (death) of heart tissue.**

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- This is a medical emergency that requires immediate intervention to restore circulation and prevent further damage.

∇ Coronary Artery Disease (CAD) Most common cause:

- **Plaque buildup** means the gradual **accumulation of fatty**, cholesterol, calcium, and dead cells on the **inner walls of an artery.**
  - Plaque buildup (atherosclerosis) in the coronary arteries reduces blood flow.
  - **Plaque rupture** can trigger **clot formation**, leading to complete blockage.
- **Coronary Artery Spasm:**
  - Sudden, temporary tightening of the coronary artery, reducing or stopping blood flow.
  - Can be triggered by:
    - Cocaine
    - Extreme emotional stress
    - Exposure to cold and Smoking

∇ Risk Factors:

- **Modifiable**: Hypertension, smoking, high cholesterol, diabetes, obesity, sedentary lifestyle, excessive alcohol intake.
- **Non-modifiable:** Age, family history, male gender, postmenopausal women.

∇ Symptoms of Myocardial Infarction (MI):

- **Chest pain (angina**) – Crushing, pressure-like pain, may radiate to jaw, left arm, or back.
- Shortness of breath
- Diaphoresis (excessive sweating)

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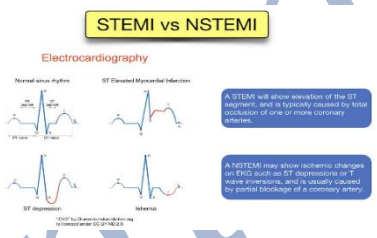
- Nausea or vomiting
- Dizziness or syncope (fainting)

∇ Diagnosis of Myocardial Infarction (MI):

- **1. ECG/EKG Findings:**



- STEMI (ST-Elevation Myocardial Infarction):
  - Complete coronary artery blockage.
  - Shows ST-segment elevation on ECG.
- NSTEMI (Non-ST-Elevation Myocardial Infarction):
  - Partial coronary artery blockage.
  - **No ST elevation;** may show ST depression or T-wave inversion.
- **2. Cardiac Biomarkers:**
- Troponin I/T:
  - Most specific and sensitive marker for MI.
  - Rises within 2–4 hours, remains elevated for 7–10 days.
- **CK-MB (Creatine Kinase-MB)**
  - Rises within 4–6 hours, peaks at 24 hours, returns to normal in 2–3 days.

∇ **Emergency Management of MI (OANM Protocol):**

- **Common acronym** used in the emergency management of Myocardial Infarction (MI), especially in first-response or early hospital care. Here's what each letter stands for:

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First, OANM

- O→ Oxygen.
- A → Aspirin **(antiplatelet).**
- N→ **Nitroglycerin** 'under the tongue sublingually' Vasodilator.
- M → Morphine**.**

◊ Long-Term Treatment & Prevention:

- Beta-blockers – Reduce heart workload and risk of future MI.
- ACE inhibitors/ARBs – Improve heart function, especially in heart failure patients.
- **Statins** – a group of medicines that can help lower the level of **low-density lipoprotein (LDL)** cholesterol in the blood as (Atorvastatin)
- Antiplatelet drugs (Aspirin, Clopidogrel) – Prevent clot formation.

∇ **Procedures:**

- **1-Percutaneous Coronary Intervention (PCI)** Also called angioplasty (with or without stent placement):

◊ Steps:

- A catheter is inserted through an artery in the groin or wrist.
- A **small balloon is inflated** at the blockage site to open the artery.
- A stent (small mesh tube) may be placed to keep the artery open.
- Purpose:
  - **Quickly restore blood flow** to the heart muscle after a heart attack or in cases of narrowed coronary arteries.

◊ After the Cath Lab all about heart rest so, what gives for heart rest:

- Same interventions as hypertension we simply give B, C, D drugs.
- B → Beta Blockers (atenolol, Labetalol).

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- L→ Calcium Channel Blockers, (Cardizem, Nifedipine, verapamil).
- D → Dilators (Vasodilator) (Nitroglycerine).

◊ What about discharge teaching:

- He should know how to give his heart rest As Hypertension and Heart failure.
- **Low sodium** to Prevent swelling, **low meats** to prevent any add cholesterol.
- Teach about smoking sensation, Stop Smoking.
- **Sex equals stairs**, once a client can Climb two flights of Stairs without being short, they of breath they Can have sex.
- Prevent **taking NSAIDs, like Naproxen, ibuprofen.**

◊ **2. Coronary Artery Bypass Grafting (CABG)**

- **A vein or artery** is taken from another part of the body (e.g., leg or chest). It is **grafted to create a new pathway** for blood to bypass the blockage.
- This is usually indicated when:
  - Multiple coronary arteries are blocked.
  - Blockage **is not suitable for stenting** or angioplasty.
  - Severe symptoms persist despite medications.
- Purpose:
  - Improve blood flow to the heart when PCI is not suitable or has failed.
- Lifestyle Modifications:
- Stop smoking, maintain a heart-healthy diet, exercise regularly, and manage stress.

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Classification: Internal Use

◊ NCLEX Key Points:

- **Troponin levels** – Best biomarker for diagnosis.
- **Immediate MI treatment** – OANM (Oxygen, Aspirin, Nitroglycerin, Morphine).
- **Patient education** – Lifestyle changes, medication adherence, and when to seek emergency care.

➢ **Heart Attack (Myocardial Infarction):**

- **in elderly women** and individuals with diabetes, heart attacks (myocardial infarctions) often present with unusual or less typical symptoms, which may result in delayed diagnosis and treatment.

◊ These patients may not experience the classic chest pain radiating to the left arm Instead, they might report:

- Nausea and vomiting
- Indigestion or heartburn
- Fatigue or weakness
- Dizziness or lightheadedness
- Shortness of breath
- Diaphoresis (excessive sweating).
- **It's crucial for healthcare providers** to maintain a high index of suspicion for myocardial infarction in these populations, even in the absence of traditional symptoms.
- **Early recognition and intervention** are vital to reduce morbidity and mortality.

◊ **Post-Myocardial Infarction Monitoring:**

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- **After a myocardial infarction,** patients should be closely monitored for the development of complications such as **pulmonary congestion**, which can progress to **pulmonary edema.**

◊ Key signs to watch for include:

- **New S3 heart sound**: An additional heart sound that can indicate heart failure.
- **Crackles (rales) on lung auscultation**: Suggestive of fluid accumulation in the lungs.
- **Jugular venous distention (JVD):** Elevated pressure in the jugular vein, often associated with right-sided heart failure.
- **The presence of these findings** should prompt immediate medical evaluation and intervention.

∇ **Pulmonary Edema:**

- Pulmonary edema is a **condition characterized by excess fluid** in the lungs, leading to impaired gas exchange and respiratory distress.

◊ Causes:

- The most common cause is **left-sided heart failure**, where the left ventricle cannot effectively pump blood, leading to fluid accumulation in the lungs.

◊ Signs and Symptoms:

- **Acute onset dyspnea** (shortness of breath): Often worsens with lying flat (orthopnea).
- **Productive cough with pink**, frothy sputum: Resulting from fluid in the alveoli.
- **Crackles** (rales) on lung auscultation: Heard during inspiration, indicating fluid in the alveoli.

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- Tachypnea and tachycardia: Rapid breathing and heart rate as compensatory mechanisms.
- **Cyanosis:** Bluish discoloration of lips or extremities due to low oxygen levels.
- **Diaphoresis (excessive sweating):** Often associated with anxiety and respiratory distress.
- Anxiety and restlessness: Due to hypoxia and difficulty breathing.

♦ NCLEX Tips:

- **Recognize Atypical Presentations**: Be aware that elderly women and diabetic patients may present with non-traditional symptoms of myocardial infarction.
- **Monitor for Complications**: After a myocardial infarction, closely observe for signs of pulmonary edema and heart failure.
- **Understand Pathophysiology**: Know the causes, symptoms, and auscultatory findings associated with pulmonary edema.
- **Prioritize Interventions**: Prompt recognition and management of these conditions are crucial to patient outcomes.

∇ Application of the OANM Protocol in Angina and Myocardial Infarction:

- The **OANM** protocol:
  - **Oxygen, Aspirin, Nitrates, and Morphine** is a key framework in managing acute coronary syndromes. However, its application varies between angina and myocardial infarction (MI).

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Classification: Internal Use

- **Oxygen** should be administered when the patient's oxygen saturation is below 94%.
    - In **stable angina**, routine oxygen therapy is not necessary unless **hypoxia is present**.
    - **In MI, oxygen** is typically given promptly, especially if the patient shows signs of **respiratory distress or low oxygen levels**.
- **Aspirin**:
    - **is essential in MI management** as it inhibits platelet aggregation and limits clot progression. It should be given immediately upon suspicion or diagnosis of MI.
    - **In angina, aspirin** is mainly used as a **preventive therapy** and is not routinely **administered during acute episodes.**
- **Nitrates:**
- help relieve chest pain by dilating coronary arteries and improving blood flow. They are commonly used **in both angina and MI** unless contraindications like **hypotension.**
- **Morphine:**
- is reserved for severe, persistent chest pain **unrelieved by nitrates**. It is rarely **required in angina.**
- **is important during MI** to reduce pain and anxiety, thereby decreasing cardiac workload.

➢ **Peripheral Venus disease (PVD**

➢ **) and Peripheral artery disease (PAD):**

◊ Artery:

- **carry oxygenated blood away from the heart** to the body tissues.

◊ Vein:

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- carry deoxygenated blood back to the heart.

∇ First, Peripheral Venus disease (PVD)

- Refers to conditions that affect the veins (usually in the legs), where **blood flow back to the heart** is impaired,
- often due to damaged valves or **blood clots.**

◊ Common Signs and Symptoms:

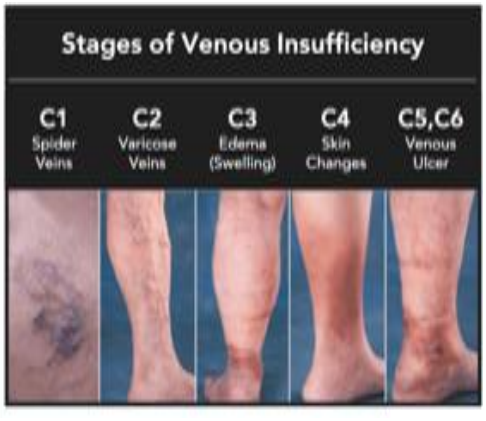
- The **heart is having trouble** Vacuuming blood back into the heart.
- The Client has **dark blood**, which Sort of pools **in the Lower leg** and bulges out the veins.
- **Leg big round** with bulging Veins this is called **Varicose Vein** « should wear Compression Socks.
- Painless legs and yellow brown ankles
- Blood is pooling and stuck in Lower extremities and cannot get back up to the heart.

◊ Why is there **no sharp pain with PVD** Peripheral Venus disease?

- Because there's **not an oxygen problem** it's a vein vacuuming this deoxygenated blood back to the heart.

◊ Risk Factors

- Female gender
- Increasing age
- Obesity, Sedentary lifestyle
- Pregnancy
- Previous leg trauma or surgery



◊ What is the treatment for PVD?

- **Elevate the leg** to help vacuum blood to the heart.

◊ Note:

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- Peripheral Venous Disease (PVD – venous type) is a broad term that includes problems with the veins in the legs such as:
- Varicose veins
- Deep vein thrombosis (DVT)
- Venous obstruction or valve incompetence
- When the valves in the leg veins are damaged or there is recurrent clot formation, blood cannot flow effectively back to the heart. Pathophysiology:
- Venous valves become weak or damaged.
- Blood pools in the legs (venous stasis).
- Chronic venous hypertension develops.
- Over time → leg swelling, brown skin discoloration, pain, and venous stasis ulcers.

◊ Summary:

- Patients with Peripheral Venous Disease (especially DVT or severe varicose veins) → progress to Chronic Venous Insufficiency because of valve failure and persistent venous congestion.

➢ Chronic venous Insufficiency:

- **Chronic venous insufficiency (CVI)** happens when **leg veins** become damaged and can't work as they should.
- Chronic venous insufficiency is a form of **peripheral vascular disease (PVD)**
- Normally:
    - **Valves in leg veins** keep blood flowing **back up** to heart. But **CVI** damages those **valves**, causing **blood** to **pool** in legs. This

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increases pressure in **leg veins** and causes symptoms like swelling and ulcers.

◊ Venous ulcers are Complication.

- **Venous ulcers** are typically shallow, irregular, and Painful when extremity in the dependent Position.

◊ Causes & Risk Factors:

- Venous valve damage (due to DVT, varicose veins).
- Prolonged standing or sitting.
- Obesity, pregnancy (increased pressure on veins).
- Smoking & hypertension.

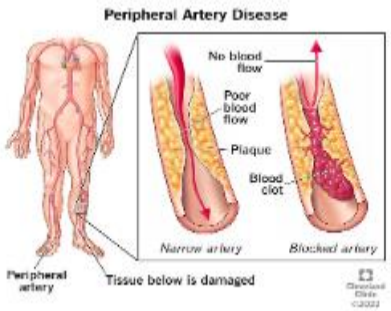
∇ Management & Nursing Interventions:

◊ **Patient Education:**

- Elevate legs above heart level to improve venous return.
- **Wear compression stockings** to reduce swelling and prevent ulcers.
- **Avoid prolonged standing**/sitting; encourage walking & leg exercises.
- **Maintain a healthy weight** & stay hydrated.
- Apply moisture.
- Consuming a-diet that high protein, vitamin C.
- Placing dressing (gauzes) on the wound

◊ **Medications:**

- Diuretics (for edema, if necessary).
- Anticoagulants if there's a DVT history



➢ **Second, Peripheral artery disease (PAD):**

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Classification: Internal Use

- **Peripheral Artery Disease (PAD)** is a vascular condition characterized by the **narrowing or blockage of arteries**, typically in the legs, due to **atherosclerosis.**
- **Oxygenated Problem** PAD because arteries **Push oxygen** blood away to the lower leg and this is the worst.

◊ Sign and symptoms:

- **There is Cramping** and leg pain calf Pain with activity that is relieved by rest, absent pulse, Cool to Touch, absence hair, Skin becomes thin, cool to touch.
- There **is pain in Calfe**. This is known as **intermittent Claudication** typically refers to lower extremity skeletal pain that occurs during exercise.
- The nurse should prioritize intervention for **PAD to prevent tissue necrosis.** (Necrosis is the death of body tissue.)
- Clients WITH PAD **have hair Loss** due to decrease blood flow.
- The arteries of the extremities became **Atherosclerotic.**
- The client With PAD has **absent pulses** because the arteries are not really working.
- **Has Black crispy foot**, legs are hairless and shin also Feel **Cool to the touch round red sores.**
- Sharp pain to the lower Leg.
- The Nurse should first Check for the **adequacy of blood flow** to the lower extremities by palpate the **presence of posterior Tibia** and **dorsally pedal Pulse**.
- When the **circulation on the extremities** is impaired the Skin on lower leg becomes, **Thin, Shiny, hair lose**.

∇ What is the treatment for PAD?

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- **Hanging the legs** over the side of the bed helps improve blood flow to the legs in PAD. **Gravity assists** the arteries in delivering oxygen-rich blood to the lower extremities, **relieving ischemic pain**.
    - Client with PAD elevated leg leads to **impair arterial blood Flow** and distal perfusion which Increase pain so the client should lower the leg to degrees the pain

∇ Factors that can cause increase (PAD)

- Smoking major risk Factor for develop and worsening PAD:
    - Therefore, the client should take **varenicline drug** is a Partial nicotine agonist that helps in **Smoking Cessation.**
- Hypertension
- Diabetes Miletus.
- Hyperlipidemia.

◊ Nursing intervention:

- **Clients with PAD** have decreased blood flow to extremities, Therefore, the leg should not elevate above the level of the heart just keep below heart.
- The client has **decreased sensation from ischemia** should **never apply direct heat** to the affected leg extremities because It Can Cause Burn Wounds.
- **Daily exercise walking** is so important client should be taught to walk to the point of discomfort, stop and rest then resume walking.

∇ Why **Daily exercise walking** is so important?

- Promotes collateral circulation (formation of new blood vessels).
- Improves functional capacity & reduces symptoms.
- Enhances overall cardiovascular health.

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➢ Orthostatic Blood pressure or postural hypotension:

- a sudden drop in blood pressure that occurs when a person moves from **a lying or sitting position** to a standing position.

⇨ Diagnostic Criteria A drop in blood pressure of:

- ≥ 20 mmHg in systolic BP
- ≥ 10 mmHg in diastolic BP
- Symptoms:
    - Dizziness, lightheadedness, syncope (fainting)

⇨ Causes:

- Dehydration (low blood volume)
- Medications (antihypertensives, diuretics, antidepressants)
- Neurological disorders (Parkinson's, autonomic dysfunction)
- Prolonged bed rest
- Anemia
- Endocrine disorders (diabetes, adrenal insufficiency)

⇨ Nursing Interventions:

- Encourage slow position changes (sit on the bed before standing)
- Increase fluid and salt intake (if not contraindicated)
- Monitor BP in different positions (lying, sitting, standing)
- Educate the patient to avoid sudden movements
- Review medications that may contribute to hypotension
- Avoid measured orthostatic blood pressure while the **Client is in standing Position**, first the client should be in **supine position.**

➢ Administer Loop diuretics as Furosemide:

- It's important to closely monitor to:
- Vital Signs.

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- Serum electrolyte.
- Kidney Function test as **Blood urea nitrogen (BUN) and creatinine**.

◊ The Nurse Should recognize the diuretics affective evidence by:

- **Increased Urine Output** (normal urine output: ≥30 mL/hr)
- Decreased Edema (reduction in swelling of legs, ankles, hands)
- Lower Blood Pressure (if used for hypertension)
- Weight Loss (fluid loss should be gradual, ~1-2 lbs/day)
- Improved Breathing (less pulmonary congestion in heart failure)
- Stable Electrolytes (monitor potassium, sodium, magnesium).

➢ Abdominal aortic aneurysm:

- An abdominal aortic aneurysm (AAA) is an **enlargement or bulge** in the part of your **aorta** that extends through belly or abdomen (abdominal aorta).

- **The bulge** forms in an area where your **aorta's wall** has grown weak.
    - Normally, **aorta walls are strong** and flexible enough to manage the **constant pressure of blood heart pumps out**. But various factors like **aging**, tobacco use, can weaken aorta wall. When **the wall is weak,** it can't handle the forces of blood flow **as well as it should.**

◊ Risk Factors:

- Hypertension
- Atherosclerosis (plaque buildup)
- Smoking (**major risk factor**)
- Older age (>60 years)
- Male gender
- Family history of aneurysm.

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♦ Signs of Ruptured AAA (Pre-Op / Emergency):

- Hypotension / dizziness
- Pulsatile abdominal mass (near umbilicus)
- Sudden severe abdominal or back pain

♦ Surgical Repair (Endovascular / Open Repair):

- **Goal:** Prevent rupture of the aneurysm
- **Procedure:**
- Small incision in groin over femoral artery
- Guide wire inserted to aneurysm
- Endovascular stent graft placed to reinforce weakened wall

♦ Post-Operative Monitoring (Critical NCLEX Points):

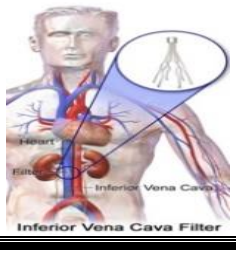
- **Signs of Graft Problems:**

1. Graft Blockage (Occlusion):

- Weak (+1) or absent distal pulse
- **Urine output < 30 mL/hr** (renal hypoperfusion)
- Possible limb pain or weakness

- **2. Graft Rupture (Leak / Hemorrhage)**
- Increasing abdominal girth
- Pelvic, back, or groin pain (sudden, severe)
- Scrotal ecchymosis
- Hypotension / shock
- **Urine output < 30 mL/hr** (renal hypoperfusion secondary to low blood volume)

➢ **inferior vena cave:**



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Classification: Internal Use

- **a large blood vessel** responsible for transporting **deoxygenated blood** from the **lower extremities and abdomen** back to the **right atrium of the heart**.
    - It has the **largest diameter** of the venous system and is a thin-walled vessel.

◊ **A vena cava filter**:

- is a small metal device that stops **blood clots** from traveling to lungs (pulmonary embolism).

◊ Indications (when to use):

- Patient has **recurrent or large DVTs**.
- Patient **cannot take anticoagulants** (blood thinners) due to:
    - Active bleeding
    - Recent surgery
    - High bleeding risk
    - Patient develops clots **despite being on anticoagulants**.

◊ Teaching:

- Promotion of Physical exercise.
- The **IVC filter reduces the risk** that a clot in the leg (DVT) will travel to the lungs → lowering the chance of **Pulmonary Embolism (PE)**.
- However, it **does not prevent new clots from forming** (new DVTs can still occur).
- The filter itself may also **move (migration) or become blocked (occlusion)**.

◊ **Therefore, the patient must still report any serious symptoms:**

- **Pulmonary Embolism:** chest pain, shortness of breath (if a small clot passes through or partial obstruction occurs).

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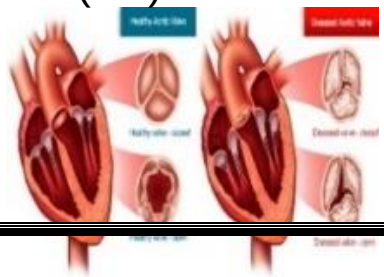
Classification: Internal Use

➢ NSAIDs non-steroidal anti-inflammatory drugs:

- Ibuprofen (Advil, Motrin)
- Naproxen (Aleve)
- Aspirin
- Celecoxib (Celebrex)
- Ketorolac (Toradol) (used for short-term pain management).

◊ Side Effects & Contraindications (NCLEX Focus):

- **Gastrointestinal (GI) Bleeding & Ulcers:**
  - Teach patients to take NSAIDs with food to reduce stomach irritation.
  - Monitor for black/tarry stools, coffee-ground emesis (signs of GI bleeding).
  - Avoid NSAIDs in peptic ulcer disease.
- Increased Risk of Bleeding:
  - Avoid with anticoagulants (e.g., warfarin, heparin) due to the risk of excessive bleeding.
  - Stop NSAIDs 7 days before surgery (especially aspirin).
- Kidney Damage (Nephrotoxicity)
  - Monitor creatinine & BUN levels (high doses can cause kidney injury).
  - Avoid renal failure or patients with chronic kidney disease (CKD).
- Cardiovascular Risks:
  - Can increase blood pressure and risk of heart attack (MI) & stroke (especially COX-2 inhibitors like celecoxib).
  - Not recommended for patients with heart failure (HF) due to fluid retention.



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Classification: Internal Use

➢ Aortic stenosis:

- **a narrowing of the aortic valve**, leading to obstructed blood flow from the **left ventricle** to the **aorta**.
    - This increases **left ventricular workload**, causing **left ventricular hypertrophy** and heart failure if untreated.

◊ Key Signs & Symptoms:

- Exertional dyspnea (refers to shortness of breath or difficulty breathing that occurs during physical activity or exercise, but not at rest.)
- Angina (chest pain) due to decreased oxygen to the heart
- Syncope (fainting/dizziness) due to reduced cardiac output
- Weak peripheral pulses (due to reduced blood flow)

◊ NCLEX Nursing Interventions:

- Monitor for **heart failure symptoms**:
    - dyspnea, fatigue, pulmonary edema, peripheral edema
- Assess **blood pressure & pulses** regularly
- **Avoid strenuous activity** → prevents excessive cardiac demand
- Teach patient to **balance rest and activity**
- Administer medications as prescribed:
- Beta blockers & calcium channel blockers (reduce heart workload Diuretics (if fluid overload is present).
- A nurse is assessing a client with **severe aortic stenosis**. Which finding is the **priority** for the nurse to report to the health care provider?
- A. Angina with exertion

  B. Syncope with activity

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C. Shortness of breath when climbing stairs

D. Weak peripheral pulses

- ✅ **Answer: B. Syncope with activity**
- Because **fainting** indicates dangerously reduced cardiac output and is life-threatening.
- The nurse is teaching a client with aortic stenosis about lifestyle modifications. Which statement by the client indicates a need for further teaching?
- A. “I will avoid strenuous activity to reduce stress on my heart.”

  B. “I should report any chest pain, fainting, or worsening shortness of breath.”

  C. “I can safely lift heavy weights if I feel strong enough.”

  D. “I need to have my blood pressure and pulses checked regularly.”
- ✅ **Answer: C. I can safely lift heavy weight.**

➢ **Autonomic dysreflexia:**

- **A potentially life-threatening** syndrome involving an abnormal overreaction of **autonomic nervous system** to painful sensory input. It most often happens after a **spinal cord injury at** or **above** the sixth thoracic vertebrae (T6).
- **Our autonomic nervous system:**
  - is a part of your **overall nervous system t**hat controls the automatic functions of your body that you need to survive, including your: **Heart rate**, **Blood pressure**, Breathing**, Digestion**.

◊ Sign and symptoms of autonomic dysreflexia:

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- The main sign of autonomic dysreflexia is sudden and severe **high blood pressure (hypertension)**, and the main symptom is headache.
- Excessive sweating above the level of spinal injury.
- **Bradycardia** (slower-than-normal heart rate).
- **Skin flushing** above the level of spinal injury and dry, pale skin below the level of injury.
- Cold skin.
- Nausea and vomiting.
- Blurred vision.
- Feelings of anxiety.

◊ What triggers autonomic dysreflexia?

- The most common noxious stimuli that triggers autonomic dysreflexia includes **issues affecting Bladder**, **Bowel,** and **Skin**.
- **If you're at risk for developing autonomic dysreflexia,** it's important to be aware of all the possible triggers so you can try to prevent them and/or quickly fix them if you **experience symptoms of AD**.

◊ Bladder Issues as a Major Trigger of Autonomic Dysreflexia:

- This often occurs when urine cannot pass out of the body, leading to an overly full bladder (bladder distension).

◊ The most common causes include:

- Issues with a Foley catheter (such as a kink or clog).
- Bladder spasms.
- Bladder stones.
- Urinary tract infections (UTIs).

⇨ Bowel issues:

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- the second most common trigger of autonomic dysreflexia. An over stretched bowel due to the following can trigger autonomic dysreflexia such as **Fecal impaction and Constipation**.

⇨ Skin issues:

- are the third most common trigger of AD. There are several possible triggers in this category, including: Pressure injury (bedsore), Cuts or bruises, Rashes.

⇨ Treatment:

- **To identify and eliminate the trigger,** if possible, before using medication or medical procedures.
- Checking and restoring **bladder drainage.**
- Evaluating the person's Foley catheter (if they have one) for blockage or malfunction and fixing it if necessary.
- **Testing a urine sample** for a urinary tract infection (UTI) and treating it with antibiotics, if applicable.
- **Performing a rectal exam** to evaluate fecal impaction and remove the poop, if necessary.

⇨ If autonomic dysreflexia suspected the Nurse should.

- **First**, elevate the head bed to 45 degrees or higher next assess for noxious Stimulate.
- Assess blood pressure and remove construction Clothing.

➢ **Raynaud's Phenomenon:**

- a condition **where blood flow to the fingers** and **toes** becomes temporarily reduced, causing them to turn pale or blue and feel cold and numb.
    - This happens in response to cold temperatures or stress.

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- During **Raynaud's attack:**
  - the **arterioles (a very small blood vessel) and capillaries** in the fingers and toes **tighten more than should**. As a result, skin in the affected area **turns white** and then **blue**.
- Disease causes some areas of the body such **as fingers and toes** to feel numbness and cold **in response** to **cold temperatures** or **stress.**

⇨ Management & Nursing Interventions:

◊ Patient Education:

- Avoid cold exposure, wear warm gloves/socks.
- Reduce stress and avoid smoking & caffeine (they cause vasoconstriction).
- Regular exercise to improve circulation.
- Implement stress strategies (yoga)

◊ Medications:

- First-line: Calcium Channel Blockers (CCBs) like Nifedipine, (vasodilation).

➢ Organ transplantation:

- **Organ transplantation** is the surgical procedure of replacing a failing organ with a **healthy donor organ**.
- Common transplants include kidney, liver, heart, lung, pancreas, and bone marrow.

⇨ Immunosuppressive Therapy:

- **Should take Immune suppress** therapy as **tacrolimus** required to prevent **acute and chronic rejection** of organs this is a lifelong drug regimen for the transplant Client.

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- Corticosteroids: Prednisone (reduce inflammation).

⇨ Nursing Interventions (Post-Transplant Care):

◊ **Monitor for Infection:**

- Fever is often the first sign (due to immunosuppression).
- Strict hand hygiene & infection control.

◊ **Monitor for Organ Rejection:**

- Kidney: Decreased urine output, weight gain, swelling, increased creatinine.
- Liver: Jaundice, elevated liver enzymes (AST, ALT).
- Heart: Arrhythmias, fatigue, shortness of breath.

◊ **Patient Education:**

- Lifelong immunosuppressant therapy.
- Avoid live vaccines & exposure to infections.
- Monitor for signs of rejection (swelling, pain, fever, organ dysfunction).

➢ **Disseminated intravascular coagulation:**

- A serious blood disorder where the body goes through two opposite stages:
- Stage One → Excessive Clotting:
- The **clotting system** is abnormally activated.
- Tiny clots form in many small blood vessels.
- This blocks blood flow → damages vital organs (kidneys, liver, brain, lungs).

◊ Stage Two → Uncontrolled Bleeding

- Because the body already used up most platelets and clotting factors in stage one.

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- When bleeding happens, there are not enough clotting factors left to stop it.
- This leads to severe bleeding from anywhere:
- Gums
- Nose
- Skin (bruising, petechiae)
- Urinary tract
- GI tract
- NCLEX Key Point:
- DIC = “Clotting first, then bleeding.”
- Causes (Triggering Conditions):
- **Sepsis** (most common cause)
- **Obstetric complications** (placental abruption, amniotic fluid embolism, HELLP syndrome).
- **Severe trauma** or burns.
- **Cancer (**leukemia, metastatic tumors).
- **Liver failure** (reduced clotting factor production).

⇨ Signs & Symptoms:

◊ **Clotting Phase:**

- Ischemia & organ damage (e.g., kidney failure, confusion, stroke symptoms).
- DVT, PE, or stroke signs.

◊ **Bleeding Phase:**

- Oozing from IV sites, gums, mucous membranes.
- Petechiae, ecchymosis, purpura.
- Hematuria, GI bleeding, hemoptysis.

⇨ Management & Nursing Interventions:

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◊ **Treat the Underlying Cause:**

- Sepsis → Broad-spectrum antibiotics.
- Placental abruption → Emergency delivery.
- Initiating Vasopressor (Norepinephrine Infusion) to increase BP.
- Monitor Coagulates (P.t, PTT, platelet)

◊ **Blood Product Replacement (if active bleeding):**

- Fresh Frozen Plasma (FFP) → Replaces clotting factors.
- Platelets → If platelet count is low.

◊ **Monitor for Organ Failure:**

- Renal function (BUN, creatinine, urine output).
- Liver function tests.

➢ **Estrogen therapy:**

- Client who takes it at risk for **hyper coagulation** (is a condition that causes **blood to clot** more easily than normal) and thrombotic complication as **DVT.**

⇨ Contraindications:

- History of DVT, PE, or stroke.
- Liver disease.
- Unexplained vaginal bleeding.

⇨ Side Effects & Risks:

- Increased risk of blood clots (DVT, PE, stroke).
- May increase cardiovascular disease risk in older women.

⇨ But,

- **Brest tenderness** and enlargement are common expected side effects.

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- **Generalized weight gain** during estrogen therapy is caused by fluid retention and is generally mild if weight gain **with cardiovascular symptoms** Pedal edema occur should be reported.

⇨ Patient Education & NCLEX Key Points:

- **Estrogen alone** → Only for women with hysterectomy (otherwise, add progesterone to prevent endometrial cancer).
- **Monitor for signs of DVT/PE** (leg pain, swelling, shortness of breath).
- **Encourage lifestyle changes** (exercise, calcium/vitamin D for osteoporosis prevention).
- **Transdermal estrogens** = Lower risk of blood clots compared to oral pills.
- **Report** any abnormal vaginal bleeding immediately

➢ **Pacemaker:**

- A pacemaker is a small device implanted under the skin that helps regulate abnormal heart rhythms by sending electrical impulses to stimulate the heart to contract.
- A pacemaker also is called a **cardiac pacing device.**
- Indications:
- Symptomatic bradycardia (dizziness, syncope, hypotension).
- Heart block (2nd or 3rd degree).
- Heart failure (biventricular pacemaker).
- Post–MI with conduction problems.

◊ After Pacemaker placement:

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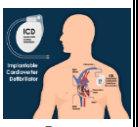
- the Nurse should attach the Cardiac monitor to assess the function of pacemaker. Then assess the insertion **Site for bleeding and hematoma.**

⇨ Discharge Teaching for Client with:

- **Report fever** or sign of Redness swelling.
- **Always carry** a pacemaker Identification card.
- Take Pulse daily.
- Avoid a-cell Phone in the Pocket near a pacemaker.
- **MRI Not Safe** should discuss with HCP before MRI
- Inform airport Security while travelling.

➢ implantable cardioverter defibrillator (ICD)

- **A small battery-powered device** placed in the chest it **detects and stops** irregular heartbeats, also called **arrhythmias.** it delivers **electric shocks**, when needed, to **restore a regular heart rhythm**.
- **HCP might need an ICD** if you have a dangerously **fast heartbeat** called **ventricular tachycardia** or **ventricular fibrillation**.
- An ICD isn't the same as a **pacemaker.**



- **A pacemaker** is a device used to prevent dangerously **slow heartbeats.**

⇨ After placement of ICD:

- **Client instructs** to avoid **lifting with the arm on the side** of ICD above the shoulder, until clear by HCP to **avoid dislodge.**

➢ Holter Monitor:

- **A small, battery-powered** medical device that measures heart's **activity**, such as **rate and rhythm.**

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- HCP may ask to use one if they need more information about how heart **functions** than a routine electrocardiogram (EKG) can give them.
- **Continues records** a client electrocardiogram rhythm for 24-48hrs.
- Placed on Chest and Portable recording unit.

⇨ Client Instruction:

- Do Not Bath or shower during test period.
- Engage in **normal activity.**

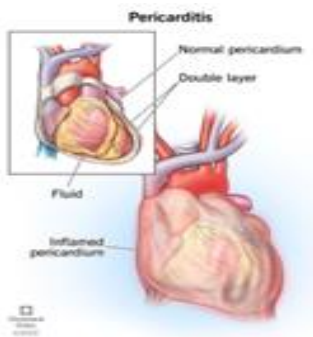
➢ Infective Endocarditis (IE):

- **Infection of the endocardium (inner lining of the heart & valves)**.
- Caused by **bacteria or fungi** entering the bloodstream → attach to heart valves.
- Can destroy valves and cause life-threatening complications
- This occurs **when germs** (usually bacteria) from elsewhere in the body **enter bloodstream** and travelling to various parts of the body causing life threatening complicated as **Pulmonary embolism**, stroke, ischemia may present symptoms like **(**pain, **pallor of extremities**).

⇨ Risk Factor of IE:

- **Prosthetic** Heart Valve Placement.
- Mechanical aortic Valve replace.
- Congenital heart defects
- Dental Procedure as Tooth extraction.
- Previous history of IE.

⇨ Symptoms:



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- Fever
- Heart murmur
- Fatigue
- Shortness of breath
- Swelling in the legs or abdomen
- New or changed heart murmurs
- Night sweats
- Weight loss
- Pain in the joints and muscles.

⇨ Treatment:

- **Antibiotics:** Intravenous antibiotics for several weeks are the main treatment.
- **Surgical intervention:** In some cases, valve replacement or repair may be needed if there is severe damage.
- Supportive care: For managing complications like heart failure.

⇨ Prevention:

- **Before procedures**: People at high risk may need prophylactic antibiotics before certain procedures like dental work or surgery.
- **Good hygiene practices**: Avoiding practices that could introduce bacteria into the bloodstream, such as sharing needles or inadequate cleaning of medical devices

➢ **Pericarditis:**

- **An inflammation of the pericardium** or sac that **contains the heart** causes sharp chest pain.

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- Inflammation of the pericardium Can progress to **pericardia effusion** (Fluid up between the **pericardial layers**) followed by **cardiac tamponade** it's a life threat.

⇨ Most common **caused by:**

- **Viral infection** as client recent recovery from **respiratory infection**

⇨ Clinical manifestation:

- **Muffled** heart sounds
- Jugular Venous distension.
- **abnormal decrease** in Systolic less than 10 mmhg with inspiration
- Tachycardia
- **Elevated** Temperature and nonproductive cough **expected**.
- **There is pain but relieved by Sitting up** and lying forward position so the Pain will **improve with This Position.**

⇨ Intervention:

- **Encourage clients** to sit up and lean forward, which relieves pain.
- Administer NSAID to decrease inflammation.
- Monitor if any sign of bleeding.

➢ **The Dietary approaches To Stop Hypertensive Include:**

- Fresh Fruits and Vegetables and Whole grains in the daily diet.
- Choose Lower Fat daily products.
- Choosing meats Lower in cholesterol as fish and poultry.
- Alternate proteins Source as **legumes instead of RED Meats.**
- **Limiting intake** of sweets, Food high in Sodium, Potato Chips, frozen meals.
- Canned Food and sugary.

⇨ Risk Factor for Hypertension:

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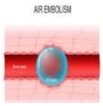
Classification: Internal Use

- Increase age.
- Positive family history.
- Black race (African American)
- Type one and type 2 diabetes
- Alcohol, smoking, Obesity, excessive sodium, secondary, lifestyle
- Stress, hyperlipidemia

⇨ Sodium Nitroprusside:

- Used for **lowering blood pressure** immediately in adults and children with high **blood pressure.**
- **This medicine** is also used to reduce **bleeding during surgery** and treats **acute heart failure.**
- Effect **within one minute** and make sever hypotension.

➢ Central venous catheter (CVC):



- **a flexible tube** inserted into a large vein, typically in the neck (internal jugular), chest (subclavian), or groin (femoral), to provide access to the central venous system.
- It allows for the administration of medications, fluids, blood products, and parenteral nutrition, as well as for obtaining blood samples and monitoring central venous pressure.

◊ Compilation of central venous catheter (CVC):

- **Risk of air embolism** is particularly high on **removal of the catheter**, especially if the catheter has been in place for **a long time** or is large, or if the patient is thin and the **subcutaneous pathway is short**.
- **Air embolism** is a life threatening occurs when air or gas is admitted into the vascular system.

⇨ Intervention:

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- Nurse should apply occlusive dressing on the site.
- Administer O2 100 % via non breathing mask.
- Position Client in **left lateral Trendelenburg position.**
- Monitor Client Status and Inform HCP.

⇨ Insertion of central Venus's access device in femoral.

- Should be avoid, if possible, due to high risk **for infection**.
- The **subclavian vein** and **jugular vein** are preferred for CVAD.

⇨ Central venous pressure (CVP):

- Measurement of **Right ventricular Preload and reflects Fluid volume** problem.
- Normal CVP is 2 to 8 mmhg.

◊ High CVP (above 8 mmHg) may suggest:

- Fluid overload
- Right-sided heart failure
- Pulmonary hypertension
- Cardiac tamponade

◊ Low CVP (below 2 mmHg) may indicate:

- Hypovolemia (dehydration or blood loss)
- Vasodilation

◊ Clinical manifestations of Elevated CVP

- **Jugular vein distention (JVD)**
- **Peripheral edema** (legs, ankles, sacral if bedridden)
- **Bounding pulses** (+4)
- **Rapid weight gain** (from fluid retention)
- **Ascites** (abdominal fluid accumulation)
- **Pulmonary congestion** → tachypnea, dyspnea, crackles
- **S3 heart sound** (sign of fluid overload/heart failure)

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- **Decreased urine output** (if severe right-sided heart failure, kidneys poorly perfused).

◊ For assessing distention of jugular neck vein:

- Should be performed with the Client **sitting** with bed at 30-45 degree to assess Presence JVD.

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2/ Endocrine System

Classification: Internal Use

➢ What is the Endocrine system?

- **The endocrine system** is a network of glands that **produce and release hormones** to regulate various body functions.
- These Hormones **are made by glands** (like thyroid, pancreas, pituitary…). They travel **in the blood** to specific organs or tissues.
- Their job is to **control important body** functions, such as:
  - **Metabolism** → how the body uses food for energy (example: insulin).
  - **Growth** → making the body grow and develop (example: growth hormone).
  - **Reproduction** → sexual functions (example: estrogen, testosterone).
  - **Homeostasis** → keeping body balance, like blood sugar, blood pressure, and temperature.
- 👉 Hormones are **chemical messengers** that move in the blood and control **the whole body.**

➢ Key Endocrine Glands & Their Functions:

◊ 1-Adrenal Glands:

- The adrenal glands consist of two main parts:
  - **Adrenal cortex.**
  - **Adrenal medulla**
  - each responsible for producing different hormones.

▪ **First, the Adrenal Cortex:**

- **Produces corticosteroids,** a big group of hormones made by the adrenal cortex Inside this group, there **are 3 main types:**

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Classification: Internal Use

◊ **1-Cortisol:**

◊ Main functions:

- **Stress response**: Cortisol is often called the "stress hormone" because it helps the **body respond to stress** by increasing energy availability.
- **Anti-inflammatory effects**: It reduces inflammation, which helps control inflammation-related conditions.
- **Regulation of metabolism**: It regulates the metabolism of **glucose**, **protein**, and **fat** in the body to help maintain energy balance and support recovery from stress.

◊ **2-Aldosterone:**

◊ Main functions:

- It a**cts on the kidneys to increase sodium reabsorption** and **potassium excretion**, thereby influencing blood volume and pressure
- **Regulating sodium and potassium levels**: Aldosterone helps balance sodium and potassium in the body, which is crucial for proper muscle and nerve function.
- **Maintaining blood pressure**: By controlling the levels of sodium, aldosterone helps manage blood volume and blood pressure.
- In short:
  - Aldosterone's main job is to maintain **fluid, electrolyte, and balanced blood pressure** in the body

◊ **Adrenal Androgens**:

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Classification: Internal Use

- **Sex steroid hormones** that contribute to secondary sex characteristics and support sex hormone balance.

◊ **2-Adrenal Medulla:**

- The **inner part** of the adrenal gland.
- Plays a **critical role** in the body's **fight-or-flight response**.
- Produces **catecholamines**: epinephrine (adrenaline) and norepinephrine (noradrenaline).
- **Functions:**
- Increases **metabolism**.
- Regulates **blood pressure**.
- Supports the body's **response to stress**.

◊ **2-Thyroid Gland:**

- **Thyroxine (T4) and Triiodothyronine (T3):**
  - Regulate metabolism, energy production, and the growth of body tissues.
- **Calcitonin:**
  - Lowers **blood calcium** by inhibiting calcium release from bones and increasing calcium excretion by the kidneys.

◊ **3-Parathyroid Glands:**

- Raises **blood calcium** by:
- Stimulating calcium release from bones.
- Reducing calcium **excretion in kidneys.**

◊ **4-Pancreas:**

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Classification: Internal Use

- The pancreas is **considered a gland** because it **secretes hormones**, which is what glands do.

◊ But the pancreases are special because they have two main functions they act as both:

- 1. Endocrine gland:
  - Secretes hormones directly into the bloodstream (no ducts).
  - **Main hormones:**
    - **Insulin:** lowers **blood sugar** by allowing cells to absorb glucose.
    - **Glucagon:** raises **blood sugar** by stimulating the liver to release glucose.
- 2-Exocrine gland:
  - This part of the pancreas **releases digestive enzymes** through ducts into the **small intestine (specifically the duodenum).**
- These enzymes help digest:
  - Proteins
  - Fats
  - Carbohydrates.

➢ 5-Posterior Pituitary Gland:

- The posterior pituitary is the **back part of the pituitary gland**, located at the base of the brain beneath the **hypothalamus.**

◊ Hormones Released by the Posterior Pituitary:

- **ADH (Antidiuretic Hormone) / Vasopressin**
  - Function: Regulates the **body's water balance** by telling the kidneys to **retain water.**

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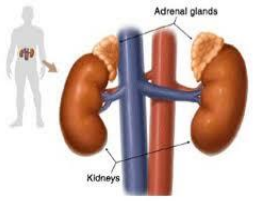
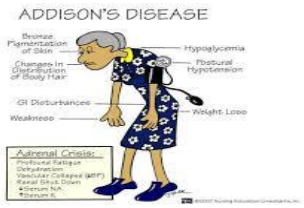
- Effect: Reduces urine output and helps maintain blood pressure and hydration.

- **Oxytocin:**
  - **Function:**
  - Stimulates uterine contractions during childbirth.
  - Triggers milk ejection during breastfeeding.
  - Also involved in emotional bonding and social behaviors.



➢ 1-Adrenal glands:

- Located on the **top of both** Kidneys is part of your endocrine system and produces certain **hormones.**



- **There are two types of adrenal gland disorder:**

◊ First, Addison's disease (Adrenal insufficiency)

- a disorder that occurs when the **adrenal glands do not produce** enough of certain hormones, particularly **cortisol and aldosterone.**

⇨ Cause:

- **Autoimmune response:** The most common cause is an autoimmune disorder, where the body's immune system attacks the adrenal glands, damaging them and reducing their ability to produce hormones.
- **Infections:** Infections such as tuberculosis or fungal infections can damage the adrenal glands.

◊ Sign and symptoms for Addison's:

- **Addison's Disease – Signs & Symptoms (ADS)**
- **A → Added Potassium**
- The kidneys cannot excrete potassium properly → potassium in the blood goes up (hyperkalemia)

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- **Bronze skin** (hyperpigmentation – darker patches of skin)
- **D → Decrease Everything**
- Decreased **weight** (weight loss)
- Decreased **energy** (fatigue, weakness)
- **Hair loss**
- **Hypoglycemia** (low blood sugar)
- **S → Sodium below 135**
- The kidneys lose too much sodium → sodium in the blood goes down (hyponatremia). Leads to **low blood pressure + dehydration**
- **Tachycardia** (fast heart rate)
- **Fever** and **confusion**
- 👉 **Summary:** Addison's = ↑ **Potassium** + ↓ **Sodium** + ↓ **BP** + ↓ **Energy + Bronze skin**

◊ Priority Interventions (NCLEX):

- Monitor vital signs (especially blood pressure and heart rate).
- Administer hormone replacement therapy:
- **Cortisol** (e.g., hydrocortisone, prednisone)
- **Aldosterone** (e.g., fludrocortisone)
- During stress, illness, or surgery, **increase steroid dose**.
- Monitor electrolytes (Na^+ and K^+) and blood glucose.
- Educate patient about lifelong hormone therapy.
- **Addisonian Crisis:**
- Life-threatening emergency due to severe hormone deficiency.
- Treatment: IV corticosteroids immediately, fluid resuscitation, correct electrolyte imbalances.

◊ Example, Client Present to ER with Addison's what is the Clinical manifestations With They present.

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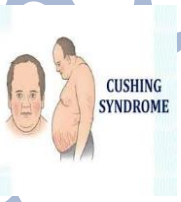
- Weight gain « X NO» decrease Weight.
- Bronze Skin « √ YES »
- unusual hair growth« X NO» hair loss
- A buffalo hump « X NO» buffalo mean big
- Sodium of 133 « √ YES » low sodium
- Hyperkalemia and Tan « √ YES»
- Hyperglycemia « X NO » HYPOGLAYCEMIA



◊ **Second disorder for adrenal gland Cushing syndrome:**

- Condition caused by p**rolonged exposure to high levels of cortisol in the body**. It can be caused by various factors, including adrenal gland problems, tumors, or medications.

◊ Cause:

- **Adrenal Tumors:** A tumor in the adrenal glands can produce excess cortisol, leading to Cushing's syndrome. This can be either:
- **Medications:** Prolonged use of glucocorticoid medications (such as prednisone)

⇨ How will the client with Cushing's present?

- Big, Round.
- Weight gain, hump on back of neck.
- High Blood Pressure and Hyperglycemia.
- Only he has Skinny Extremities and even brittle bone.
- Osteoporosis
- **Hirsutism** it's like big hairy steroids add a lot of hair and make the body big.
- Depression, mood swings.

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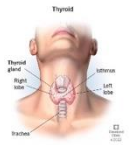
- NCLEX Tip: Monitor for signs of infection, hyperglycemia, and hypertension

∇ How to Fix the Client of Cushing syndrome:

- **Cause:** Too many steroids made by the adrenal glands.
- **Surgery (Adrenalectomy):** Remove tumors on the adrenal glands.
- After surgery, the client may develop **Addison's disease** (low steroid levels).
- To prevent this, they need **lifelong steroid replacement** (drugs ending in **"-sone"**, like prednisone or hydrocortisone).
- Always **taper steroids slowly** to avoid an **Addisonian crisis**.
- ☞**Rule to Remember:**
    - Remove the extra steroids → then replace them safely in small amounts.

➢ **Thyroid gland:**



- **It releases hormones** that help control **Metabolism (**the process in which your body transforms the food you eat into energy).
- **The two main hormones** your thyroid releases **thyroxine** (T4) and **triiodothyronine** (T3).
- **High metabolism:**
    - when your **metabolism** is extremely active, which means your body burns more calories than it should. It can lead to symptoms like **weight loss.**
- **Low metabolism**:
    - refers to the **body's reduced calorie-burning rate** for energy production. People with low metabolism tend to burn fewer

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calories at rest and during activity, which can lead to **weight gain**.

◊ **There are two types of Thyroid gland disorder:**

∇ **First, Grave's disease (Hyperthyroidism):**

- Grave's disease is an autoimmune disorder that **leads to hyperthyroidism** (excess thyroid hormone production). It is the most common cause of overactive thyroid.
- The immune system attacks thyroid glands causing it to make **more thyroid hormones** which are called **Hyperthyroidism.**

◊ Causes:

- Autoimmune attack on the thyroid → Excess T3 & T4 hormones

⇨ Triggers:

- Stress, infection, pregnancy, smoking, iodine excess.

⇨ Sign and symptoms of Hyperthyroidism:

- High metabolism → weight loss despite increased appetite
- High BP, high pulse, high RR
- Tremors, insomnia, heat intolerance
- Diarrhea (avoid high-fiber diet)
- Goiter (enlarged thyroid)
- Exophthalmos (bulging eyes)
- Mood changes: irritability, anxiety

▪ **Critical Condition:**

- Thyroid storm: Extreme hyperthyroidism; life-threatening.

◊ Symptoms:

- Agitation, confusion, fever, tachycardia, cardiac dysrhythmias, vomiting, altered mental status.

◊ Diagnosis:

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Classification: Internal Use

- Blood tests: ↑T3 & T4, ↓TSH
- Interventions:
- **Medications:**
  - Beta-blockers, calcium channel blockers, vasodilators (for hypertension)
  - Lifestyle: Low caffeine, low fiber, avoid soda; high-calorie diet (~5000 kcal).
- Eye care:
  - Tape eyelids at night if exophthalmos is present

◊ Treatment:

- **Radioactive iodine (RAI):** Destroys overactive thyroid tissue; precautions needed (pregnancy, isolation, hygiene)

◊ Precautions for safety after treatment:

- Avoid contact with **pregnant women and children** for several days
- Use **separate utensils, cups, towels, and bathroom** if possible
- **Flush toilet 2–3 times** after use
- Avoid holding infants or children for at least **2 hours** after RAI

◊ Pregnancy considerations:

- Ensure a **negative pregnancy test** before treatment
- **Long-term effects:**
- May develop **hypothyroidism**, requiring **lifelong thyroid hormone replacement**

◊ Surgery (Thyroidectomy):

- Indication: Performed if **radioactive iodine (RAI) fails** or is not suitable.
- Post-op: Client will require **lifelong thyroid hormone replacement (levothyroxine)**

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- Post-Thyroidectomy:
- Monitor airway (stridor, noisy breathing)
- Keep neck neutral
- Check calcium levels (risk of hypocalcemia)
- Signs of Hypocalcemia:
- Trousseau's sign (arm spasm with BP cuff)
- Chvostek sign (facial twitch when tapping cheek)
- Seizures, muscle spasms, cardiac dysrhythmia

➢ **The second disorder in the Thyroid gland is:**

- **Hashimoto's disease: (Hypothyroidism):**

- Autoimmune disorder in which the immune system attacks the thyroid gland.
  - Leads to **underproduction of thyroid hormones (T3 & T4),** which are essential for metabolism, energy, and overall body function.

◊ Diagnosis:

- Blood tests:
- Low T3 (triiodothyronine)
- Low T4 (thyroxine)
- High TSH (thyroid-stimulating hormone)
- Sign and symptoms:
- Low blood pressure, low heart rate, low respiratory rate
- Fatigue, low mood, hair loss, low libido
- Constipation, menstrual irregularities
- Weight gain (due to low metabolism)
- Cold intolerance

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- Alopecia (hair loss)
- Bradycardia
- Complications:
- **Myxedema coma** (extreme hypothyroidism)
  - ABCs:
    - **Airway/Breathing:** Low respiratory rate → Respiratory failure
    - **Circulation:** Low BP & HR → Shock
  - Emergency interventions:
- **Airway support:** Endotracheal intubation or tracheostomy if neede
  - Treatment:
- **Lifelong hormone replacement:**
    - Levothyroxine (take in the morning)
    - Never stop abruptly; sudden discontinuation can trigger myxedema coma
- **Diet & Lifestyle:**
    - Low-calorie, low-fiber diet (due to slow metabolism)
    - Include: bananas, oily fish, cheese, milk, dark green vegetable

◊ Key Point:

- Graves' = antibodies stimulate → too much hormone (Hyperthyroidism).
- Hashimoto's = antibodies destroy → too little hormone (Hypothyroidism).

➢ 3-Posterior Pituitary Gland:

- The posterior pituitary is the back portion of the pituitary gland, located at the base of the brain, just below the hypothalamus.

◊ Hormones Released by the Posterior Pituitary:

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- ADH (Antidiuretic Hormone) (Vasopressin):
- **Function:**
  - Regulates the body's water balance by **signalling the kidneys to retain water.**
- **Effect:**
  - Reduces urine output, maintains blood pressure, and supports hydration.
- Oxytocin:
- Functions:
  - Stimulates uterine contractions during childbirth.
  - Triggers milk ejection during breastfeeding.
  - Plays a role in emotional bonding and social behaviors.

∇ **Syndrome of Inappropriate Antidiuretic Hormone (SIADH):**

- A disorder where too much **ADH is released**, causing the body to retain water.

○ Pathophysiology:

- Excess ADH → kidneys hold onto water → **low urine output**
- Water retention causes **dilutional hyponatremia** (low sodium)
- Severe hyponatremia can lead to **cerebral edema, confusion, and seizures**

○ Causes:

- **Malignancies** (especially small cell lung cancer)
- **CNS disorders** (head trauma, stroke, meningitis, Guillain-Barré syndrome)

○ Treatment & Nursing Interventions:

- **Hypertonic 3% saline** (to correct severe hyponatremia)

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Classification: Internal Use

- **Seizure precautions**
- **Loop diuretics** (e.g., furosemide)
- Monitor daily weight and fluid balance
- **Fluid restriction** (but do **not** restrict sodium)
- NCLEX Tip:
  - Remember **"SIADH = Soaked Inside"** → low urine output, low sodium, water retention.

∇ **Diabetes insipidus (DI)**:

- A condition caused by a deficiency of **antidiuretic hormone (ADH)** or an inability of the **kidneys to respond to ADH,** leading to excessive urination and dehydration.

○ Types of Diabetes Insipidus (DI):

◊ **Central DI:**

- **Low production of ADH** from the **posterior pituitary.**
- **Problem =** the posterior pituitary does not make enough ADH.
- Kidneys are **normal**, but they **do not get the signal to retain** water.
- Result → excessive urination, dehydration

◊ **Nephrogenic DI:**

- The body produces **normal amounts of ADH**, but the **kidneys do not respond** to it.
- Result → the kidneys cannot retain water → **excessive urination and dehydration**.

◊ Why is Desmopressin used only in Central DI?

- Desmopressin is a synthetic (man-made) version of ADH.
- In Central DI:

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- since the problem **is low ADH**, desmopressin replaces the missing hormone and works well.

- But in Nephrogenic DI:
  - **The problem is not the hormone level;** it's that the kidneys don't respond to ADH so giving desmopressin won't help, because the kidneys "don't listen" to it.

◊ Key Signs & Symptoms (NCLEX Focus):

- **Polyuria** (Excessive urination, up to 20 L/day)
- Polydipsia (Excessive thirst)
- Dehydration (Dry skin, poor skin turgor, hypotension, tachycardia)
- **Dilute urine** (Low urine specific gravity < 1.005, low osmolality)
- Hypernatremia (Increased serum sodium due to water loss)
- Fatigue & irritability (Due to dehydration and electrolyte imbalances)

◊ Priority Concern:

- **Most life-threatening problem:** dehydration → low blood pressure → shock.

◊ Priority Intervention:

- Replace fluids **first** (IV fluids like D5W or NS)
- Desmopressin (for Central DI) can be used

◊ Important NCLEX Considerations:

- Too much desmopressin/ADH → fluid retention → hyponatremia (similar to SIADH).
- Signs of ADH excess: headache, confusion, nausea, weight gain, edema.
- Monitor sodium and vital signs carefully.
- NCLEX Tips:
- **DI =** Dilute urine + Dehydration + Deficient AD

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Classification: Internal Use

- **Remember:** SIADH is the opposite condition (too much ADH → water retention).
- Watch for signs of dehydration and electrolyte imbalances in patients with DI.
- Desmopressin is used only in central DI, not nephrogenic.

◊ General Management:

- Encourage **fluid intake to prevent** dehydration
- Monitor vital signs, intake & output, daily weight
- Monitor electrolytes (especially sodium and potassium)
- Educate patient to report **headache, confusion, dizziness, edema**
- Administer desmopressin **only for Central DI**
- Avoid sudden changes in fluid intake

➢ **4-Pancreas:**

- **The pancreas is considered** a gland because it secretes hormones, which is what glands do.

◊ It secretes hormones directly into the bloodstream (with no ducts) the main hormones:

- Insulin → lowers blood sugar
- Glucagon → raises blood sugar.

◊ Diabetes Mellitus:

- A condition where blood sugar (**glucose**) becomes too high (**hyperglycemia**).

◊ Pathophysiology (Simple Explanation):

- **Glucose** comes mainly from **carbohydrates in food**.
- After digestion, glucose enters the **bloodstream**.

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Classification: Internal Use

- To move glucose **from the blood into the body's cells**, the hormone **insulin** is needed.
- **Insulin** is made by the **pancreas** (a gland behind the stomach).

◊ Insulin helps:

- Move **glucose into cells** for energy.
- Move **potassium into cells** as well.

◊ Problem in Diabetes Mellitus:

- Either:
  - the **pancreas does not make enough insulin.**
  - Or the **body does not use insulin properly** (insulin resistance).
- Result → Glucose builds up in the blood → **Hyperglycemia**.

∇ **Type one DM:**

- **An autoimmune disease,** chronic (life-long) that prevents your pancreas from **making insulin.**

◊ Pathophysiology (NCLEX Key Concept)

- **Autoimmune destruction** of pancreatic **beta cells**.
- Result → **No insulin production**.
- Without insulin, **glucose cannot enter cells** → remains in the bloodstream → **hyperglycemia**.
- The body uses **fats and proteins** for energy instead.

◊ This leads to:

  - **Ketosis** (ketone buildup → risk for **diabetic ketoacidosis, DKA**).
  - **Weight loss** (due to fat and muscle breakdown).

◊ Key Signs & Symptoms:

- Polyuria – Excessive urination (due to osmotic diuresis)

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- Polydipsia – Excessive thirst (due to dehydration)
- Polyphagia – Excessive hunger (cells are starving for glucose).

∇ **Type two DM:**

- **The pancreases don't make enough insulin**, or **the body Cells doesn't response normally** to insulin which call **insulin resistance.**
  - Lifestyle factors:
    - Obesity and lack of exercise can contribute to the development of Type 2 diabetes as well as **genetic factors.**

◊ Comparison – NCLEX Tip:

- **Type 1 DM** → No insulin at all → requires lifelong insulin.
- **Type 2 DM** → Can sometimes be managed or reversed with lifestyle changes & oral meds.

◊ Blood Sugar Levels (NCLEX Critical Values)

- **Hypoglycemia**: Blood glucose **≤ 70 mg/dL**.
- **Hyperglycemia**: Blood glucose **≥ 115 mg/dL** (persistent levels are concerning).

⇨ **Long-Term Complications of Hyperglycemia**

- **Kidney** → Will destroyed, resulting in renal Failure.
- **Heart** → Hypertension, and atherosclerosis.
- **Eyes** → Sight will be destroyed with retinopathy leading to blindness.

⇨ **Diabetic Foot Care (NCLEX Safety Priority):**

- Keep feet **clean, dry, and injury-free**.
- Wear **well-fitting shoes** (no sandals, no high heels).
- Use **soft cotton socks**, not nylon.
- **Never use heating pads/blankets** → risk of burns due to neuropathy.

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Classification: Internal Use

- Report **non-healing wounds** immediately.
- Goal: Prevent **infection, gangrene, and amputations**.
- **Most dangerous complication**: Infection → bacteraemia → sepsis → death.

◊ What are signs and symptoms of hyperglycemia type two?

- **P**→ Polyuria that's a lot of urination.
- **P**→ Polydipsia that's Drink a lot.
- **P**→ Polyphagia that's increased apatite.

◊ **What Dietary Teaching (NCLEX Nutrition):**

- Avoid foods high in sugar with no fiber/fat:
  - (white bread, white rice, candy, juice with no pulp).
- **Teach healthy choices:**
  - High fiber (whole grains, brown rice, vegetables).
  - Healthy fats (peanut butter, nuts, avocado).
- Remember:
  - If it has no fiber & no fat → it spikes blood sugar fast.

◊ NCLEX Alert – Triggers for Hyperglycemia:

- Infection **or Illness:**
  - When the body gets sick, it releases **stress hormones (like cortisol / glucocorticoids)** to fight the infection.
  - These hormones cause the **blood sugar to rise**, even if the client is not eating sugar.
- **Surgery or Hospitalization:**
  - The body sees surgery as "stress." Stress hormones are released → this also **raises blood sugar**.

◊ **NCLEX Key Point:**

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- Any diabetic client who is **sick or having surgery** will usually have **higher blood sugar levels**, so nurses must check glucose frequently and give insulin as needed.

◊ **Treatment for DM Type One:**

- Insulin injection.

◊ **Treatment for DM Type two:**

- Diet, exercise, and oral hypoglycemic agents.

◊ **Note:**

- We cannot **reserve type one**, but we can reserve Type two.

◊ **Insulin Types:**

⇨ Type one

- The one option is insulin.

⇨ **Where is the best place to give insulin?**

- **Subcutaneous injection** two inches from the belly button, known as **umbilicus** or the naval area.
- You must know the **onset and Peak times** to prevent that hypoglycemic crisis.

◊ **First, Rapid Insulin (Subcutaneous):**

- Characteristics of **Rapid-Acting Insulin:**
- Onset: 15–30 minutes
- Peak: 30–90 minutes
- Duration: 3–5 hours

◊ Examples:

- Aspart, Lispro, Glulisine you must give these when the Client is eating, or when food is at the bedside.

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- **Never give it If the food is on the way** (just give it only during active eating or if that plate is in front of Client)
- You need to **reassess the Client 15 to 90** minuet after giving it
- Always assess for Hypoglycemia as **Pale, Cool, Shaky, and dry.**

◊ **Second, Regular insulin IV:**

- Characteristics of Regular Insulin
- Onset: 30–60 minutes **(SubQ)** / 15 minutes **(IV)**
- Peak: 2–4 hours
- Duration: 6–8 hours
- Example: Regular insulin (Humulin R, Novolin R)
- **The only insulin** that can be given IV, right in vain or IV bag is regular insulin.

◊ **Third, Intermediate acting insulin « NPH » (Subcutaneous):**

- Characteristics of NPH Insulin
- Onset: 1–2 hours
- Peak: 4–12 hours (**Highest risk of hypoglycemia!)**
- Duration: 12–18 hours
- Example: NPH (Humulin N, Novolin N)
- **We never give it IV Push**.

◊ NCLEX Administration Guidelines:

- Given subcutaneously (NEVER IV)
- Cloudy insulin – Must be gently rolled before use.
- Often given twice daily (morning & evening meals)
- Monitor for hypoglycemia during peak hours (4–12 hours after administration).
- Can be mixed with regular insulin (clear before cloudy rule).

◊ Key NCLEX Tips:

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- "CLEAR before CLOUDY" – Draw up Regular insulin first, then NPH.
- Give with food to prevent hypoglycemia!
- Not used in emergency situations (unlike regular insulin IV).

⇨ **Fourth, Long-acting insulin:**

- Characteristics of Long-Acting Insulin
- Onset: 1–2 hours
- Peak: None (Steady release, NO peak)
- Duration: 24+ hours
- Examples: Detemir (Levemir), Glargine (Lantus).

➢ **Treatment for Type Two DM.**

◊ **First, Diet:**

- Focus on **fiber** and **healthy fats**.

◊ Teach clients:

  - Anything brown, anything whole" → Brown rice, Whole wheat bread, Whole milk.

◊ **2. Exercise:**

  - At least **30 minutes per day** of movement.

◊ **Oral Agents:**

◊ **1-Metformin:**

- **Minimal risk of hypoglycemia**
  - Rarely causes low blood sugar compared to other diabetes drugs.
- **Promotes weight loss**
  - Helpful for overweight clients with Type 2 DM.
- **No alcohol → Risk of lactic acidosis**

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- Alcohol increases the **chance of lactic acidosis**, which is a rare but life-threatening complication.

- **Stop 2 days before & after heart cath (IV contrast dye)**
  - IV contrast can damage the kidneys. If combined with Metformin, it increases the risk of **kidney failure + lactic acidosis.**

◊ **2-Glipizide / Glyburide / Pioglitazone:**

- **Avoid clients with heart failure**
  - These drugs can cause **fluid retention** → which makes **heart failure worse**.
  - Monitoring NCLEX Key Points:
  - **Do NOT give these drugs if the patient has heart failure.**
  - **Watch for weight gain, swelling, or shortness of breath → early signs of fluid overload.**
  - **Teach clients to report edema or dyspnea immediately.**

◊ **Hemoglobin A1C**:

- reflects average glucose over **3 months**.

- Normal: **< 6.5%**.
- Abnormal: **> 6.5%**.

∇ **Hypoglycemia (Low Blood Sugar < 70 mg/dL):**

- **More dangerous than hyperglycemia** (fast death).

◊ Symptoms:

- Cool & Clammy → Need some Candy."
- Sweating, trembling, confusion, weakness.

◊ Risk Situations:

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- During **insulin peak times** (always reassess at peaks).
- **Exercise** (uses up glucose).
- Skipping or delaying meals.
- Alcohol use.

◊ Interventions:

▪ If **awake & alert** → Give **fast-acting carbs** (no fat, no fiber).

- Examples:
  - juice without pulp, soda, white crackers, low-fat milk.

▪ **If unconscious**:

- Give **IV dextrose (D50 push or IV bag)**.
- Assess → intervene.

◊ Key Teaching:

- **Do NOT give high fiber or high fat** foods in hypoglycemia (slows absorption).
- Example: Wheat toast (whole fiber)
- White bread or simple crackers.

➢ **Acute Complications of Diabetes Mellitus:**

- DKA (Diabetic ketoacidosis)
- HHNS (Hyperglycemic Hyperosmolar, non-ketonic syndrome)

∇ **Diabetic Ketoacidosis (DKA):**

- Occurs mainly in **Type 1 diabetes** (often in children or young adults).
- **DKA has a rapid onset** → it can develop suddenly within hours or about one day.
- Blood glucose: usually **> 250 mg/dL**.
- **Ketones present** → fruity breath, metabolic acidosis.
- **pH < 7.35** (acidic blood).

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- **Potassium**:
  - appears high at first but drops when insulin is started because insulin pushes potassium into cells.

◊ Clinical signs:

  - confusion, drowsiness ("drunk" appearance), abdominal pain, dehydration, Kussmaul respirations (deep, rapid breathing).

◊ Treatment priorities:

- Correct dehydration with **IV 0.9% Normal Saline**.
- Start **IV regular insulin** (onset ~1 hr, peak 2–4 hrs).
- When blood glucose reaches **~200 mg/dL**, stop the insulin drip → switch to **subcutaneous insulin + IV fluids with dextrose (D5W)**.
- Continuously monitor hydration, urine output (>30 mL/hr), blood pressure, and skin condition.

➢ **Hyperglycemic Hyperosmolar, non-ketonic syndrome. «HHNS»**

- Occurs mainly in Type 2 diabetes (more common in older adults).
- Onset is slow (days to weeks). The condition **develops gradually over time** and doesn't happen suddenly.
- Blood glucose:
  - extremely high, often > 600 mg/dL.
- No ketones, no fruity breath, no acidosis.
- pH remains normal (>7.35).

◊ Symptoms:

  - severe dehydration, lethargy, blurred vision, altered mental status, may progress to coma.

◊ Treatment priorities:

- Correct dehydration with IV 0.9% Normal Saline (isotonic fluids).

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- Give IV insulin slowly and carefully to lower glucose.
- Monitor electrolytes and neurologic status closely.

◊ Key Difference:

- DKA → Type 1, Ketones, Acidosis, Fast onset, Kids.
- HHNS → Type 2, No ketones, No acidosis, Very high sugar, Slow onset.

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3 / Gastrointestinal and Nutrition

➢ Total Parenteral Nutrition (TPN):

- **Definition**
- A method of delivering **complete nutrition intravenously** for patients who cannot tolerate oral or enteral feeding.
- Provides **carbohydrates, proteins, fats, electrolytes**, vitamins and minerals.

◊ Administered via a **central venous catheter (CVC:)**

- A general term for any catheter whose **tip ends in the superior vena cava (SVC)** or near the right atrium such as:
- PICC line
- Subclavian vein catheter
- Internal jugular vein catheter

◊ Common Complications & Management:

- **1. Hyperglycemia:**
- **Signs:**
  - Excessive thirst, polyuria
- **Management:**
  - Monitor blood glucose frequently
  - Administer insulin as needed
  - Adjust TPN infusion rate
- **2. Hypoglycemia**
- **Signs:**
  - Weakness, shakiness, diaphoresis
- **Management:**
  - Wean TPN gradually; avoid abrupt discontinuation
  - If TPN is stopped suddenly, give IV dextrose (e.g. D10W)

◊ **Question:**

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◊ A client is receiving total parenteral nutrition (TPN). Which finding requires immediate intervention?

- Polyuria and polydipsia
- Mild nausea after infusion
- Warm IV site without redness
- Small weight gain in 2 days

◊ The nurse caring for a client receiving TPN notes that the infusion was accidentally stopped. Which action is the nurse's priority?

- Check electrolytes
- Notify the provider
- Infuse 10% dextrose (D10W) IV
- Monitor urine output
- **3. Catheter-Related Infection (Sepsis):**
- Signs:
    - Fever, chills, elevated WBC count, redness or drainage at the insertion site
- Prevention & Management:
- Strict aseptic technique during catheter insertion and dressing changes
- Monitor temperature and WBC count
- Remove or replace catheter if infection is confirmed
- **4. Electrolyte Imbalances:**
- **Signs:**
    - Muscle weakness, arrhythmias, confusion
- Management:
- Check lab values regularly (Na^+, K^+, Mg^{2+}, PO_4^{3-}, Ca^{2+})
- Adjust TPN electrolyte composition as needed

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Classification: Internal Use

◊ Indicators of Therapeutic Effectiveness:

- **Weight gain** (return to or maintenance of healthy body weight)
- **Positive nitrogen balance**, reflected by rising **pre-albumin** levels
- (Low pre-albumin may indicate malnutrition; an increase suggests adequate protein delivery).

➢ **Deficiency of lactose enzyme (Lactose intolerance):**

- **Lactose intolerance** is the inability to digest lactose (**a sugar) found** in milk and dairy products, due to deficiency or absence of **lactase enzyme** in the **small intestine**.
    - This leads to **gastrointestinal symptoms** when consuming lactose-containing foods.

◊ Causes & Risk Factors:

- **Primary (Genetic)** :
    - Most commonly, lactase production decreases with age.
- **Secondar**:
    - Due to **small intestine damage** from conditions like Crohn's disease, celiac disease, gastroenteritis, chemotherapy, or intestinal surgery.

◊ Signs & Symptoms (Appear 30 minutes to 2 hours after lactose ingestion)

- Bloating, Diarrhea (watery), Abdominal cramps, Flatulence (gas), Nausea.

◊ Nursing Management & Patient Education:

- **Dietary Modifications:**
    - Avoid or limit dairy (milk, cheese, yogurt, ice cream).

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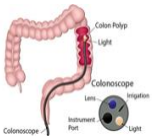
- **Use lactose**-free products or plant-based alternatives (almond, soy, oat milk).
- **Consume low-lactose dairy** (e.g., hard cheeses, yogurt with active cultures).
- **Lactase enzyme supplements** (e.g., Lactaid) before consuming dairy.

- **Nutritional Considerations:**
  - Risk of calcium & vitamin D deficiency → Encourage intake of leafy greens.



➢ Colonoscopy:

- **A colonoscopy** is a diagnostic procedure that uses a flexible fiber-optic scope to visualize the large intestine (colon) and rectum.

◊ Indications for Colonoscopy:

- **Screening** for colorectal cancer (recommended at age 45+, earlier if high risk)
- **Evaluate GI symptoms** (e.g., rectal bleeding, chronic diarrhea, constipation, weight loss)
- Diagnose inflammatory bowel disease (IBD) (e.g., Crohn's disease, ulcerative colitis).

◊ Pre-Procedure Nursing Care:

- **Clear liquid diet** for 24 hours before the procedure (avoid red/purple liquids).
- **Bowel prep** with laxatives.
- NPO status for at least 6-8 hours before the procedure.

◊ Patient Education:

- Expect frequent diarrhea during bowel prep.

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Classification: Internal Use

- Procedure requires **moderate sedation** (e.g., midazolam, fentanyl, or propofol).
- Arrange for transportation home (due to sedation effects).

◊ Medication Considerations:

- **Stop anticoagulants** (warfarin, aspirin, clopidogrel) per provider's orders to prevent bleeding.
- Diabetics should adjust insulin due to fasting.

◊ During the Procedure:

- Position: Left side lying with knees drawn up (Sims' position).

◊ Post-Procedure Nursing Care:

- Monitor vital signs (risk of hypotension or bradycardia due to vagal stimulation).
- Monitor for complications (e.g., perforation, bleeding, infection).
- Assess for abdominal pain, distension, excessive bleeding (small spotting is normal).
- NPO until fully awake and bowel function returns.

◊ Complication of Colonoscopy:

- **Perforation** can lead to **peritonitis** with positive rebound tenderness.
    - **Perforation** (**A hole in your large intestine**, also known as a **bowel perforation**, can cause **stool to leak into your abdomen**. A hole in your stomach or small intestine can leak food or digestive f**luids into your abdomen.)**
- Abdominal distention, rigid abdomen
- Abdominal cramps are expected after **the procedure.**

➢ **Paracentesis:**

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Classification: Internal Use

- a **sterile procedure** in which a needle or catheter is inserted into the **peritoneal cavity** to remove **ascitic fluid** for diagnostic or therapeutic purposes.
- Performed only if the client **impaired breathing** or pain due to **ascites. Ascites** itself is not always an emergency**.**
    - If the fluid is mild, the patient may just need dietary sodium restriction, diuretics (spironolactone, furosemide), and monitoring.
    - But if there is too much fluid, it can:
    - Press on the diaphragm → causing shortness of breath, difficulty breathing.
    - Increase abdominal pressure → causing pain, discomfort, inability to eat or move comfortably.

◊ Ascites:

- The Definition: Abnormal accumulation of fluid in the peritoneal cavity (>25 mL).
- Causes: Commonly due to liver cirrhosis, portal hypertension, heart failure, malignancy.

◊ Clinical Manifestations:

- Abdominal distension and discomfort (pressure on surrounding organs).
- Dyspnea / shortness of breath due to pressure on the diaphragm.
- Early satiety, anorexia, fatigue.

◊ Nursing Interventions

- Positioning: Place client in Semi-Fowler's or High-Fowler's position → improves lung expansion and breathing.
- Comfort measures:

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Classification: Internal Use

- Provide repositioning, supportive mattress/pillows.
- Offer distraction techniques (e.g., music therapy, relaxation).
- Dietary restrictions:
  - Sodium restriction (usually <2 g/day).
  - Fluid restriction may be required if client also has hyponatremia.
  - Monitor: Daily weight, abdominal girth, intake & output.

◊ Indications for Paracentesis:

- **Ascites** (fluid accumulation in the abdomen) due to:
- **Liver cirrhosis** (most common cause)
- Malignancies (cancer-related ascites)
- Infections (e.g., spontaneous bacterial peritonitis - SBP)
- Heart failure
- Pancreatitis
- Relieve abdominal pressure caused by large fluid buildup.

◊ Pre-Procedure Nursing Care:

- Obtain baseline vitals, weight, and abdominal girth
- Verify informed consent
- Assess coagulation labs (INR, PT, aPTT, platelet count) → Risk of bleeding
- **Have patient empty** bladder to prevent puncturing the bladder
- Position patient upright (high Fowler's or sitting on the edge of the bed).

◊ Post-Procedure Nursing Care:

- **Monitor vital signs** → Risk of hypotension & shock due to fluid shift
- Assess for bleeding or infection at the puncture site
- **Monitor for signs** of peritonitis (fever, abdominal rigidity, pain)
- Re-weigh patient & measure abdominal girth to evaluate fluid removal

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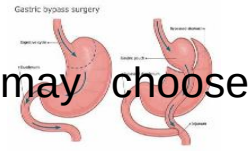
- Albumin may be given IV to prevent fluid shift & hypovolemia
- Encourage bed rest for several hours.

◊ Complication:

- **Hypotension &** Shock Dizziness, tachycardia, pallor, confusion should Monitor BP, administer IV fluids & albumin
- **Peritonitis (infection)** Fever, chills, abdominal pain, rigid abdomen should Monitor temperature, assess for infection, notify provider
- **Bleeding Hypotension**, tachycardia, bruising at puncture site should Monitor coagulation labs, assess puncture site.

➢ Morbid obesity:

- **Morbid obesity** is a condition in which you have a body mass index (BMI) higher than 35.
- The Client who cannot achieve weight reduction may choose **bariatric surgery.**



◊ Types of Bariatric Surgery:

- Gastric Bypass
- Sleeve Gastrectomy

◊ Gastric bypass:

- A type of bariatric surgery where the stomach is made smaller (pouch created) and a portion of the small intestine is bypassed.
  - Results in reduced food intake and decreased nutrient absorption.

⇨ Complication:

- Many clients experience **dumping syndrome** such as **Nausea, diarrhea, tachycardia, dizziness** and feeling lightheaded caused by **Rapid gastric empty**.

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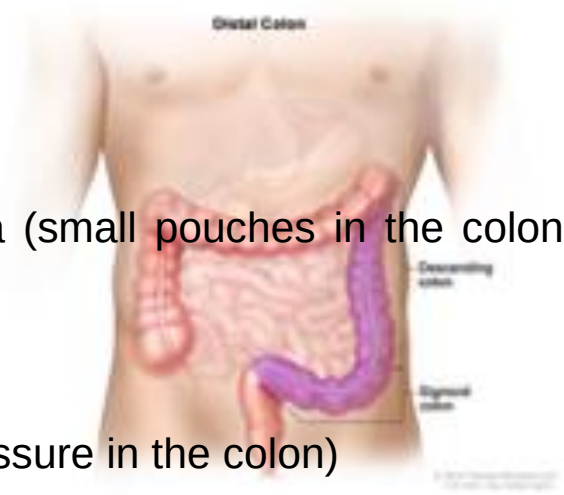
- Dumping syndrome is a condition in which **food, especially food high in sugar**, moves from your **stomach** into your **small bowel** too quickly **after you eat.**

◊ To reduce the symptoms:

- Should **recline after eating to slow empty gastric**.
- **Avoid upright** or **seated position** because of the **increase gastric empty.**
- Key NCLEX Tip:
  - Clients should eat small, frequent meals, avoid sugary foods, and rest in a semi-reclining position after meals to prevent rapid gastric emptying.



➢ **Diverticulitis: (left Lower quadrant):**

- Inflammation or infection of diverticula (small pouches in the colon wall).

◊ Causes & Risk Factors:

- **Low-fiber diet** (leads to increased pressure in the colon)
- **Aging** (more common in adults > 50 years)
- Obesity, smoking, lack of exercise
- Regular use of NSAIDs, steroids, opioids.
- This disease has been linked to **chronic constipation** preventing constipation may help reduce the risk of **diverticula** and become inflamed. A**cute care of diverticulitis** focusses on allowing the colon to rest so any procedure or treatment that increases intra-abdominal pressure must avoid as **enema.**

⇨ To prevent constipation:

- **High Fiber**, Whole Grain, fruit, vegetables

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- Excessive Drink Fluid at least 2-3L.
- Exercise regular.
- Fiber supplement**, psyllium Bran** (form of seeds of **herb** is soluble fiber make the stool easier to pass).
- Avoid seeds, POP Corn, Red Fat Meat.
- Encourage warm Fluid with breakfast.
- increase intake of natural sources of dietary fiber as raw fruits
- No **dairy products** like cheese butter, ice-cream, yogurt.

⇨ Diverticulitis Is caused by inflammation of diverticula of the large intestine that Can lead to:

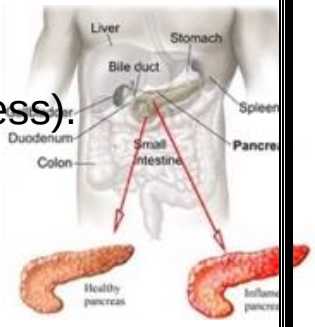
- Fever despite antibiotics.
- Also, **Intestinal Perforation** resulting in diffuse **Peritonitis** and **Progressive Pain in other quadrants of the abdomen,** Rigidity, **Rebound Tenderness**
- The Client will experience acute **Pain left Lower quadrant.**

⇨ Sign and symptoms of diverticulitis:

- Chills, Vomit, anorexia, low grade fever, blood in stool.

⇨ Nursing Management & Treatment:

- **Acute Diverticulitis (Hospitalized Patients**).
- NPO & IV fluids (rest the bowel).
- Pain management (IV acetaminophen، avoid NSAIDs, avoid opioids
- IV antibiotics (e.g., metronidazole + ciprofloxacin or ampicillin).
- NG tube if severe vomiting or ileus.
- Monitor for complications (perforation, peritonitis, abscess).



➢ **Acute Pancreatitis: (Left upper abdomen)**

- A sudden inflammation of the pancreas.

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- Normally, pancreatic enzymes (amylase, lipase) are inactive until they reach the small intestine.
- In acute pancreatitis, these enzymes **activate too early inside the pancreas** → the pancreas starts **digesting itself** (**autodigestion**).

⇨ Causes & Risk Factors:

- **Gallstones** (most common cause)
- Ethanol (alcohol abuse - second most common)

⇨ Diagnosis:

- Elevated Amylase & Lipase
- Elevated WBCs, CRP (indicates inflammation)
- Elevated Blood Glucose (pancreatic dysfunction)
- CT scan with Contrast (Gold standard to visualize inflammation & necrosis)
- Hypocalcemia (low calcium) (sign of severe pancreatitis, fat necrosis causes calcium deposits)

⇨ Manifestations**:**

- Sever Pain occur after eating.
- Pain in epigastric area.
- Pain in **left upper abdomen** and may be **relieved by leaning forward.**
- Hyperglycemia because Clients Pancreas is not releasing insulin.
- Fever signs of infection, **leukocytosis,** increase and indicate abscess Formation.

⇨ it's as evidenced by:

- increase **lipase level** and associated with **pain after eating or alcohol**.

⇨ intervention For Acute Pancreatitis

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- **NPO** even oral mediation
- **IV** antiemetic administration
- Pain management (IV. Hydromorphone)
- Position Client with **Knee Flexed toward the chest**, to relieve Pain.
- IV fluid replacement
- **Check blood glucose** and insert nasogastric tube for suction.

⇨ So, what is the Priority intervention:

- **Aggressive Fluid replacement** with Lactated ringer Solution IV bolus will maintain adequate Fluid Volume and Prevent hypovolemic Shock.

⇨ This Client may develop:

- Pleural Effusion
  - Fluid collects in the pleural space.
  - Can cause shortness of breath and decreased oxygen saturation.
- Atelectasis
  - Partial collapse of the lungs due to shallow breathing from pain.
  - Leads to hypoxemia if not addressed.
- Acute Respiratory Distress Syndrome (ARDS)
  - Severe inflammation of the lungs caused by systemic inflammatory response.
  - Life-threatening → requires ventilatory support

➢ **Appendicitis (Right Lower quadrant):**

- is the inflammation of the **appendix**, usually due to obstruction.
- It is a medical emergency that can lead to perforation, peritonitis, or sepsis if untreated.

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Classification: Internal Use

⇨ Causes & Risk Factors:

- Fecal obstruction (fecaliths - hardened stool)
- Foreign bodies, tumors
- Diet low in fiber & high in refined carbs

⇨ Characteristics:

- Abdominal pain begins in the **umbilical area** and then to **the Right lower quadrant** which is called **McBurney's point.**
- Appendicitis causes pain in the **lower right abdomen**, which usually begins around the **navel and then moves.**
- Rebound Tenderness(pain when releasing pressure)
- Pain with leg extension.

⇨ Diagnosis:

- Elevated WBCs (>10,000) → Infection
- Abdominal CT scan (Gold standard)
- Ultrasound (for children & pregnant women)
- Avoid barium enema & laxatives (risk of perforation).

⇨ Nursing Management & Treatment:

- **Pre-Op Care (Before Appendectomy):**
  - NPO (prepares for surgery)
  - IV fluids (prevents dehydration)
  - Pain management **(Avoid** strong opioids that mask rupture signs)
  - No heat application! (can cause rupture)
  - Avoid laxatives/enemas (risk of perforation)
- **Surgical Treatment (Appendectomy):**
  - Laparoscopic appendectomy (preferred if no rupture)
  - Open appendectomy (if perforation occurs)

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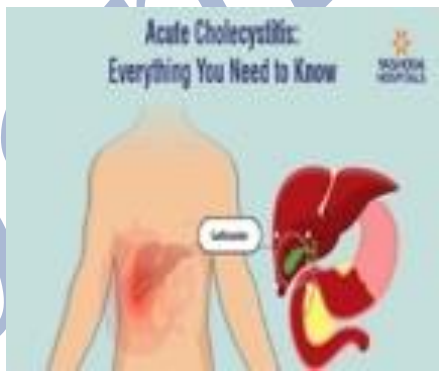
- **Post-Op Care:**
  - Monitor vital signs & incision site for infection
  - Encourage early ambulation (prevents DVT & ileus)
  - Advance diet as tolerated (clear liquids → regular diet)
  - If perforation: NG tube, IV antibiotics, longer hospital stay

➢ **Acute cholecystitis :(Right upper Quadrant):**

- Acute inflammation of the gallbladder, usually caused by **obstruction of the cystic duct** due to a **gallstone**



⇨ Causes & Risk Factors:

- **Gallstones** (Most Common Cause - 90%)
- High-fat diet, obesity, rapid weight loss
- Pregnancy, oral contraceptives
- Prolonged fasting, total parenteral nutrition (TPN)

⇨ Manifestations:

- fever, Tachycardia, leukocytosis (elevated WBCS) and vomiting.
- **Pain occurs after eating** Fat Food (cheese, avocado, fried food)
- Pain in epigastric area of the **upper abdomen or right upper quadrant**.

⇨ Nursing Management & Treatment:

- **Acute Phase (Hospitalized Patients)**
  - NPO (rest the gallbladder)
  - IV fluids & electrolyte replacement
  - Pain management (IV acetaminophen or NSAIDs).
  - **Avoid morphine** due to bile duct spasm risk.
  - IV antibiotics (if infection suspected)
  - NG tube if severe nausea & vomiting

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- **Surgical Treatment (Preferred Treatment):**
  - Laparoscopic cholecystectomy (Minimally invasive, short recovery)
  - Open cholecystectomy (If severe inflammation or complications)
- **Post-Op Care:**
  - Early ambulation to prevent gas pain
  - Low-fat diet after surgery (small frequent meals)
  - Monitor for bile leakage (RUQ pain, jaundice, fever post-op).

➢ **Client with end stage organ failure as liver failure and schedule for transplant what is the priority for him:**

◊ **Priority Nursing Consideration:**

- Evaluate the client's **willingness and capacity to manage advanced** self-care activities (such as medication management, diet control, and monitoring vital signs).
- Before transplant:
  - The nurse should evaluate whether the client is **motivated** and has the **physical, emotional, and cognitive ability** to follow through with **strict self-care** as taking lifelong immunosuppressants, keeping follow-up appointments.
- After transplant:
  - Continuous **reassessment is crucial** to ensure the client is adhering to treatment and can maintain the complex regimen. Examples:
    - **correct medication timing**, recognizing early signs of rejection or infection, maintaining hygiene, and avoiding risk factors.

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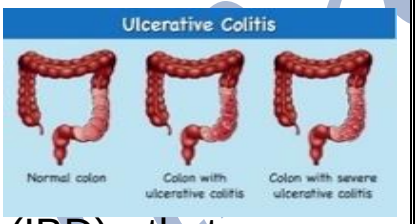
◊ Why This Is a Priority:

- Post-transplant care is **complex and lifelong**.
- **Non-compliance** with medications or follow-up care can lead to **organ rejection** or other complications.
- Ensuring the client is **mentally and emotionally prepared** improves the chances of a successful transplant outcome.



➢ **Ulcerative Colitis:**

- A **chronic inflammatory bowel disease** (IBD) that causes continuous inflammation and ulcers in the **colon and rectum**.

◊ It leads to:

- Frequent, bloody diarrhea (10-20 stools/day in severe cases).
- Abdominal pain & cramping.
- Weight loss & fatigue (due to malabsorption and nutrient loss).
- Anemia & dehydration (from chronic blood and fluid loss).
- Fever & increased WBCs (during severe flares).

◊ Causes & Risk Factors:

- Autoimmune response:
  - Body attacks the colon lining.
- Genetics:
  - Family history increases risk.
- Environmental factors:
  - Stress, infections, and diet may trigger flare-ups.
  - Age 15-35 years – Common onset.

◊ Nursing Interventions (NCLEX Focus):

- Dietary modifications:

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- Low-fiber, high-protein diet during flare-ups (Fiber increases bowel movements)
- Avoid dairy, spicy foods, caffeine, and alcohol (can trigger symptoms).
- Increase fluid intake to prevent dehydration.

◊ Administer prescribed medications:

- **Aminosalicylic Acid:**
  - **First-line treatment** for **mild-to-moderate Ulcerative Colitis.**
  - Anti-inflammatory drug used to reduce inflammation in the colon.
- **Corticosteroids (Prednisone)** For acute flare-ups (short-term use).
- **Immunosuppressants** (Azathioprine, Cyclosporine) For long-term control.

◊ Encourage stress management:

- Teach relaxation techniques: **yoga, breathing exercises, meditation**.
- Encourage the Client to discuss feeling about Condition.

◊ **Complications (NCLEX Focus):**

- **Toxic Megacolon (Life-threatening emergency)**
  - **Assessment:**
  - Severe abdominal distention.
  - Fever, tachycardia, hypotension.
  - Painful, tender abdomen.
  - Diagnosis:
  - Abdominal X-ray → colonic dilation ≥ 8 cm = diagnostic red flag.
  - Risk:
  - Perforation → sepsis → death if untreated
- **2. Colon Perforation:**
  - Sudden severe abdominal pain.

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- Absent bowel sounds.
- Signs of shock (tachycardia, hypotension).

- **3.** Increased Risk of Colorectal Cancer
  - Requires regular colonoscopy screenings (every 1–2 years depending on duration of disease)
- **4. Clostridium difficile Infection:**
  - More common due to **frequent antibiotic use** & immunosuppressants.
  - **Signs:** watery diarrhea, fever, abdominal pain.
  - Requires stool testing & isolation precautions.

◊ This Client will require a Colonoscopy with biopsy:

- Colonoscopy with biopsy is used to **confirm Ulcerative Colitis** vs. Crohn's disease or other bowel disorders.
- Findings:
  - continuous inflammation starting from the rectum with superficial ulcers.
  - Biopsy confirms diagnosis through tissue samples.

◊ So, the anticipate intervention:

- Inform the Client to expect post procedure Cramping.
- Ensure Signed Consent
- instruct empty Colon.
- NPO 8:12 prior procedure
- Clear liquid diet after procedure

➢ **Main Difference between Ulcerative Colitis (UC) Diverticulitis:**

- **Even though both affect the colon**, they are completely different diseases in cause, nature, and treatment.

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Classification: Internal Use

◊ Ulcerative Colitis (UC):

- is a chronic autoimmune disease that causes continuous **inflammation of the inner lining of the colon** and rectum. It usually starts from the **rectum and spreads continuously** through the colon.
- **Symptoms often include bloody diarrhea** and abdominal pain. It is a long-term inflammatory condition.

◊ Diverticulitis:

- is an **acute infection or inflammation of small pouches** (called diverticula) that form in the wall of the colon, mostly in the **lower part.**
- It happens when these pouches get blocked, leading to localized inflammation, pain (usually in the lower left abdomen), and sometimes fever. It is a localized, short-term infection, not an autoimmune disease.

◊ In short:

- Ulcerative colitis is a **chronic autoimmune inflammation** of the colon lining, while diverticulitis is a **localized infection of small pouches** in the colon wall caused by blockage.

➢ **Irritable bowel syndrome**:

- A chronic **functional gastrointestinal disorder** that primarily affects the large intestine (colon).
- It causes:
  - abdominal pain, bloating, and altered bowel habits (diarrhea, constipation, or both).

◊ Pathophysiology:

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- No structural damage **to the colon.**
- Problem is in motility & sensitivity of the bowel (colon is extra sensitive to stress, hormones, certain foods).

◊ Diarrhea Management:

- **<48 hours:** Nurse should instruct **rest and fluid intake**.
- **>48 hours:** Nurse should instruct the client to **visit the clinic**.

◊ Common IBS Triggers:

- Stress
- Caffeine
- Fatty or spicy foods
- Alcohol
- Milk/dairy products
- Gas-producing foods (beans, cabbage, broccoli)

◊ NCLEX Nursing Management:

- Recommended diet:
  - **Low-fat, high-protein, and high-fiber foods** (e.g., baked chicken, brown rice, strawberries).
- Stress Reduction:
  - Relaxation techniques (deep breathing, yoga)
  - Referral to counselling if stress is significant
- Medications (Symptom-Specific):
  - **Loperamide** – for diarrhea
  - **Lubiprostone, psyllium** – for constipation

➢ **Gastroduodenostomy (Billroth I):**

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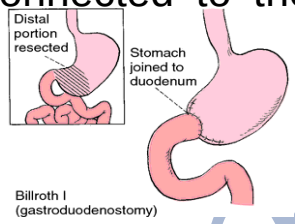
- **A surgical procedure** where the lower part of the stomach is removed and the remaining stomach is directly connected to the duodenum.



◊ Indications:

- Peptic ulcer disease resistant to medical treatment
- Gastric cancer
- Severe gastric bleeding or perforation

◊ Postoperative Nursing Care (NCLEX Focus):

◊ **Monitor for complications:**

- Dumping syndrome:
- Rapid gastric emptying causes symptoms like diarrhea, dizziness, rapid heartbeat (tachycardia), and sweating shortly after eating.
- Dietary modifications to prevent Dumping Syndrome:
- Eat **small, frequent meals** rather than large meals.
- Follow a **high-protein, low-carbohydrate diet**.
- Avoid sugary foods and drinks during meals.
- Encourage the client to **lie down for 20-30 minutes after eating** to slow gastric emptying.

- Gastric retention or delayed emptying:
  - Can cause **nausea and vomiting**; may require insertion of a nasogastric (NG) tube to decompress the stomach.
- Nutritional deficiencies:
  - Monitor for signs of **iron deficiency** anemia, vitamin B12 deficiency (which can cause anemia and neurological symptoms), and folic acid deficiency.

◊ **Monitor for signs of bleeding:**

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- Watch for **coffee-ground vomit** or **melena** (black, tarry stools), which indicate upper GI bleeding.
- Monitor vital signs for **hypotension and tachycardia**, signs of significant blood loss.

- **4. Encourage early ambulation:**
  - to reduce risk of complications like deep vein thrombosis (DVT) and pneumonia.

➢ Small Bowel obstruction (SBO):

- **Small bowel obstruction (SBO)** occurs when **the normal flow** of intestinal contents is blocked due to a **mechanical obstruction** (e.g., **adhesions,** hernias, tumors) or functional obstruction (e.g., paralytic ileus).

◊ Signs & Symptoms:

- **Abdominal pain & cramping** – Colicky and intermittent.
- **Abdominal distension** More pronounced in distal obstructions.
- Nausea & vomiting May contain bile or fecal matter in severe cases.
- Constipation No passage of stool or gas.
- Hyperactive bowel sounds (early) → Absent bowel sounds (late).

◊ Nursing Interventions (NCLEX Focus):

- **NPO (Nothing by mouth)** Prevents further distension.
- IV fluids & electrolyte replacement Prevents dehydration.
- Nasogastric (NG) tube for **decompression and relief** of vomiting.
- Pain management Avoid opioids if possible (may worsen ileus).
- Monitor for signs of perforation or ischemia – Fever, severe pain, peritonitis.
- NOTE:

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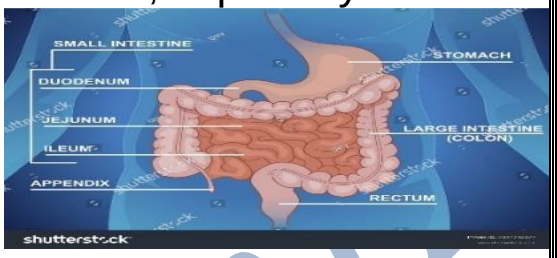
- Laxatives should NOT be given.
  - Why?
  - **Laxatives** can increase intestinal pressure, which may lead to bowel perforation or worsen the obstruction, especially in cases of complete blockage.



➢ Peptic Ulcer:

- A **peptic ulcer** is a **general term** that refers to any ulcer (open sore) that forms in the **lining of the stomach, duodenum (first part of the small intestine), or sometimes the esophagus**.

◊ Types of peptic ulcers:

- **Gastric ulcer**:
  - located in the stomach.
- **Duodenal ulcer**:
  - located in the duodenum (First part of the small intestine).
- **Esophageal ulcer**:
  - rare, in the lower esophagus.

◊ **Gastric ulcer**:

- **Stomach ulcers (gastric ulcers)** are open sores that develop on the lining of the **stomach**.
- That may result in gastrointestinal bleeding.

◊ Common Causes:

- **H. pylori infection** Most common cause (type of bacteria that infects the **stomach lining**. It is one of the main causes of **gastric and duodenal ulcers** because it damages the **protective mucosal layer** of the stomach)

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- **Chronic NSAID use (**Nonsteroidal anti-inflammatory drugs (like ibuprofen, aspirin, or naproxen) can **irritate the stomach lining**, leading to reduced protective mucus and increased risk of gastric ulcers) .
- **Excess gastric acid secretion** Can be linked to stress, smoking, or alcohol.
- **Corticosteroids & anticoagulants** Increase the risk of ulcer formation.

◊ Sign and symptoms of gastric ulcer:

- **Epigastric pain** (burning) Worsens with food.
- Nausea & vomiting.
- Weight loss -Due to pain-induced reduced appetite.
- **Hematemesis** (vomiting blood) Indicates possible bleeding ulcer.
- **Melena** (black, tarry stools) Suggests GI bleeding.

◊ NCLEX Alert: Signs of Ulcer Complications:

- **Perforation:** Sudden, severe abdominal pain, rigid abdomen, absent bowel sounds → Medical Emergency!
- **Bleeding ulcer:** Tachycardia, hypotension, pale skin, hematemesis, or melena → Immediate intervention needed!

◊ Nursing teach Client with Peptic ulcer disease**:**

- Avoid take NSAID without Prescription risk for Bleeding.
- Avoid take Caffeine, cola, Tea
- Avoid smoking, alcohol.
- Eating Small Meals.

➢ **The guaiac fecal occult blood test (FOBT):**

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- A test that checks for **occult (hidden) blood in the stool** usually requires Stool Sample from 2-3 separate.

◊ Patient Instructions Before Test:

- **Avoid red meat**, NSAIDs, aspirin, and vitamin C supplements for 3 days before the test (to prevent false positives or negatives).
- **Increase fiber and fluid** intake to ensure adequate stool sample collection.
- No recent dental procedures (bleeding gums may cause false positives).
- **Avoid testing during** menstruation (to prevent contamination).

◊ The step for collocation

- Obtain Supplies, wash hand, and apply nonsterile gloves.
- Open the **slide Flap** and apply 2 separate **stool Sample** to the boxes on the side.
- Open the **Black of the slide** and apply 2 drops of developing Solution to each Box.
- Wait 30-60 Second.
- document the result in the electronic media record

➢ **Refeeding Syndrome:**

- A potentially life-threatening condition that occurs in **malnourished patient**s when they start eating or receive nutritional support (like IV nutrition/TPN) after a **period of starvation.**
- Mechanism:
  - The sudden intake of nutrition causes **rapid shifts in fluids** and electrolytes (especially phosphate, potassium, and magnesium) in the body.

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- Consequence:
  - These imbalances can lead to serious complications, including heart failure, respiratory failure, and even death if not monitored carefully.

◊ Who's at Risk?

- Patients with anorexia nervosa
- Chronic alcoholics
- Cancer patients
- Post-starvation or prolonged fasting
- Post-major surgery or sepsis

◊ Evidence by decline:

- **Electrolyte imbalances:**
  - Hypophosphatemia → Weakness, confusion, seizures.
  - Hypokalemia → Muscle weakness, arrhythmias.
  - Hypomagnesemia → Tremors, seizures, cardiac issues.
  - Fluid retention & Edema (due to sodium retention).
  - Cardiac complications (arrhythmias, heart failure).
  - Neuromuscular problems (weaknesses, confusion, seizures).

◊ Nursing Interventions (NCLEX Focus):

- **Start refeeding slowly** (gradually increase caloric intake over 4-7 days)
- Monitor & replace electrolytes (especially phosphate, potassium, magnesium).
- Monitor **vital signs & cardiac rhythm** (risk for arrhythmia & heart failure).
- Daily weights & strict I&O monitoring (watch for fluid overload)
- Monitor blood glucose levels (risk for hyperglycemia).

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- Educate patients & families on gradual nutrition reintroduction.

➢ Liver:

- The liver is the largest internal organ in the body. It sits mainly in the **upper right portion** of the stomach area, above the stomach.

◊ Liver cirrhosis:

- **Cirrhosis** is severe scarring of the liver. This serious condition can be caused by many forms of liver diseases and conditions, such as **hepatitis or chronic alcoholism**.
- Each time your liver is injured whether by **excessive alcohol consumption** or another cause, such as **infection** it tries to repair itself. **In the process, scar tissue forms** as cirrhosis gets worse, more and more scar tissue forms, making it difficult for the liver to do its job.

◊ Liver Cirrhosis:

  - Causes **Portal hypertension** (increased pressure within the **portal venous system.)** that lead to **developmental of esophageal varices.**

◊ Portal vein **system**:

- A blood vessel that carries blood from many abdominal organs (like the intestines, stomach, and spleen) to the liver.
- The liver filters and processes this blood (removes toxins, metabolizes nutrients) before it returns to the heart and circulates throughout the body.

◊ Esophageal varices:

- **Enlarged or swollen veins** in the lower part of the esophagus, often caused by **high blood pressure in the portal vein** (portal

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hypertension), which is typically a result of liver disease such as cirrhosis.

- **It** develops when **regular blood flow** to the **liver** is **blocked** by a clot or **scar tissue in the liver** which result in **Vomiting Blood Bright (Hematemesis)** indicate bleeding upper GI like (**Peptic ulcer, oesophageal varices).**
- **Client with liver cirrhosis** who is vomiting bright Red Blood is most likely Gi bleeding from **ruptured Esophageal varices**. So, the nurse should prioritize intervention for **esophageal varices** due to Risk for **hypovolemic shock.**

◊ Complication of liver Cirrhosis:

- Abdominal ascites
- Esophageal varices
- Hepatic encephalopathy
- Malnutrition.

◊ Client with liver cirrhosis:

- Should avoid activity that increase intra-abdominal pressure Straining heavy lifting.
- Avoid fat diet.
- Encourage protein and carbohydrate.

◊ Anticipated Prescription for Client rupture Esophageal varices:

- Administer IV Fluid bolus.
- Maintain NPO
- Start **octreotide infusion** (medication that is often given as an infusion for management of acute haemorrhage from esophageal varices in liver cirrhosis)
- Transfusion Packed Red Blood Cells

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◊ Laboratory abnormalities Common liver failure:

- **Low** serum albumin Cause (Ascetics) (3.5-5).
- **Elevated** INR, PT increases risk for Bruising, Bleeding).
- **Elevate** ammonia cause (lethargy, Confusion) (15-45).
- **Increase** Bilirubin Cause (Jaundice, itching) (0,2-112).
- **Low** platelet (petechiae, bleeding)

◊ **Hepatic Encephalopathy**

- A serious complication of **end-stage liver disease**, caused by **accumulation of toxins (especially ammonia) in the blood**, leading to **neurological dysfunction**.

◊ Assessment:

- Clients who are **confused or lethargic** should be assessed for **worsening encephalopathy**.
- Compare **current neurological status** with **baseline assessment** to detect changes in motor control, consciousness, or cognition.
- **Monitor serum ammonia levels** (normal 15–45 µmol/L; elevated in hepatic encephalopathy).

◊ Treatment:

- **Lactulose** is the most common treatment → reduces ammonia levels.
- Goal: **2–3 soft bowel movements per day**.
- Continue lactulose **until mental status improves and ammonia levels decrease**.
- Administration: **orally on an empty stomach** for faster effect, or mixed with **water, juice, or milk** to improve taste

➢ **Vegan Diet:**

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Classification: Internal Use

- A diet that **excludes all animal products**, including **meat, poultry, fish, dairy, eggs, and sometimes honey**
- The Client should **educate about V B12** deficiency which leads to hand and feet **tingling sensation.**
- Importance of Supplement and eating **B12 Fortified foods**.

◊ Manifestations of Chronic deficiency include:

- Peripheral Neuropathy (tingling, numbness) .
- Neuro muscular impairment (gait problem, poor balance).

◊ Nursing Teaching (NCLEX Tips):

- Encourage **B12 supplements** or fortified foods.
- Teach about **iron-rich plant foods** and combining with **vitamin C** to improve absorption.
- Recommend **calcium and vitamin D–fortified foods** or supplements.
- Monitor for signs of **anemia**, **fatigue**, **bone health issues**, or **neuropathy** (B12 deficiency).
- Encourage a **variety of plant proteins** to ensure all essential amino acids are consumed.

➢ **Ostomy Surgery:**

- Surgical **creation of a stoma** (an opening on the abdominal wall) to allow stool or urine to exit the body when normal elimination routes are not functional.

◊ Types of Ostomies:

◊ Colostomy (Large Intestine):

  - Ascending: Semi-liquid stool, high risk of skin irritation
  - Transverse: Mushy stool, moderate output

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- Descending/Sigmoid: Formed stool, similar to normal defecation

◊ Ileostomy (Small Intestine):

- Stool is **liquid to semi-liquid,** rich in digestive enzymes → high risk of skin breakdown

◊ Urostomy (Ileal Conduit):

- Urine is diverted through a section of the ileum → continuous urine output into the stoma appliance

◊ Psychosocial Considerations:

- Body image disturbance
- Need for patient education, emotional support, and lifestyle adaptation

◊ Nursing Interventions (NCLEX Focus):

- Education:
  - Explain the purpose of surgery
  - Teach stoma and appliance care
  - Educate on signs of complications (skin irritation, infection, stoma color changes)
- Promote Self-Care:
  - Encourage independence in ostomy management
  - Teach proper appliance changing techniques
  - Encourage adequate fluid intake, especially for ileostomy patients
- Support:
  - Provide emotional support
  - Refer to support groups or wound/ostomy nurses
- Monitoring:
  - Stoma should be pink to red and moist → healthy

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- Pale or blue → poor perfusion → report immediately

- Priority Outcome:
  - Client can look at and touch the stoma, indicating acceptance

◊ **Ileostomy Specific Care:**

- Surgically created opening connecting the small intestine to the external abdomen

◊ Postoperative Care:

- Assess stoma: pink/red, moist
- Manage output: initially liquid → gradually more formed
- Check skin around stoma for irritation

◊ Complications to Monitor:

- **Dehydration**
  - Stool is liquid to semi-liquid and continuous → high fluid loss → risk of dehydration.
- **Electrolyte Imbalances**
  - Losing fluids means losing sodium and potassium → can cause muscle weakness, fatigue, or heart problems.
- **Obstruction**
  - Certain foods (seeds, nuts, high-fiber) can block the stoma or small intestine.
- **Skin Breakdown**
  - Liquid stool contains digestive enzymes → irritates peristomal skin → risk of redness, rash, or infection.
- Patient Education:
- Dietary: avoid high-fiber foods, nuts, seeds, tough meats to prevent blockage

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- Stoma care: proper cleaning, pouch changing, and emptying
- Hydration: maintain adequate fluid intake

➢ What is a Hernia?

- A hernia occurs when an organ or tissue (usually intestines) **pushes through a weak spot** in the muscle wall, especially in the abdomen. It often appears **as a bulge** that becomes more noticeable with coughing, lifting, or straining.

◊ Common Types of Hernias:

- **Inguinal hernia**: Most common; occurs in the groin. Seen more in **men**.
- **Umbilical hernia**: Around the **belly button**. Common in infants and adults with obesity or pregnancy.
- **Femoral hernia**: Below the groin, more common in **women.**

◊ Types of Hernia Repair Surgery:

- **Open Hernia Repair:**
- A single incision is made over the hernia.
- The protruding tissue is pushed back in place.
- The weak spot is stitched or reinforced with a mesh.
- **Laparoscopic Hernia Repair:**
- Minimally invasive surgery using small incisions and a camera.
- Faster recovery and less pain, but not suitable for all cases.

◊ Postoperative Nursing Care:

- Teach the client to **avoid lifting**, straining, or coughing forcefully for **6 to 8 weeks**.
- Encourage **splinting** the incision with a pillow when coughing or sneezing.

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- Apply **ice packs** to reduce swelling and pain.
- Monitor for signs of **urinary retention**, especially after **inguinal hernia repair**.
- Encourage **early ambulation**, frequent repositioning, and deep breathing exercises.
- Give **small, low-fat meals** to reduce pressure on the abdomen and prevent bloating.
- Assess urine output.
- The Client should **reposition** frequently, ambulate as soon as possible and practice **deep breath every** 1 /2 hrs.

➢ **Decrease gastrointestinal Motility:**

- It means that the movement of food, fluids, and gas through the digestive tract is **slower than normal**.
- This can cause **constipation, bloating, abdominal discomfort, and distension**.

◊ Possible of decrease GI Motility may Cause:

- **Post-operative ileus** which means (prolonged absence of bowel function after surgical **procedure**) **often result in** sever vomiting, abdominal pain distention and absent bowel Sound.
- **Small bowel obstructions**: abdominal Pain, distention, vomiting, Inability to Pass, flatus, Stool.

◊ The Nurse should prioritize Further assessment:

- Excessive Vomiting
- Increase abdominal distention so, **NGT Recommended.**
- Hypoactive or absent bowel sound
- absence of Flatus and increase abdominal Pain

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◊ For The client Suspected Post-operative ileus:

- Should do X Ray, abdomen and Pelvic.
- Provide small sips of clear fluid 24-48hrs limit oral intakes.

◊ Anticipate interventions:

- Monitor and measure abdominal girth.
- Use **Non OPIOD** Pain Medication.
- Administer IV Fluid
- correct electrolyte abnormal
- Encourage frequent ambulation.
- Balance Bowel reset with limit oral intake.
- clear fluid.

◊ After Abdominal Surgery:

- Place client in **low Fowler's position with knees bent** → reduces tension on the wound.
- May develop Postoperative Ileus Common Causes:
  - Abdominal surgery
  - Opioid use
  - **Signs & Symptoms:**
  - No bowel movement or flatus
  - Absent bowel sounds
  - Nausea and vomiting
  - Abdominal distension
  - **Management:**
  - Keep patient **NPO** (nothing by mouth)
  - Insert **NG tube** for decompression if ordered
  - Administer **IV fluids**
  - **Monitor electrolytes** close

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➢ **Diabetic Nephropathy**:

- A serious complication of **Type 1 and Type 2 diabetes**.
- Also called **diabetic kidney disease** → chronic loss of kidney function in diabetic patients.

◊ Significance:

- Leading cause of **chronic kidney disease (CKD)** and **end-stage renal disease (ESRD)**.
- **Elevated serum creatinine** is a key indicator → priority for monitoring and follow-up in diabetic patients.

◊ NCLEX Tip:

- Always **monitor kidney function** (BUN, creatinine, urine protein) in diabetic clients.
- Early detection can prevent progression to ESRD.

◊ Nursing education of chronic kidney disease**:**

- Its Impair the kidney ability of **excrete excess electrolyte as Sodium, Potassium, magnesiu**m so due to **Impaired renal electrolyte excretion**, the administration of **electrolyte** Containing products or **Medication** as Magnesium hydroxide, potassium chloride May results in **rapid life threating.**
- Restrict Sodium.
- Fluid restricts.
- Diuretics Recommended.

➢ **Percutaneous endoscopic gastrostomy (PEG):**

- a procedure to **place a feeding tube.** These feeding tubes are often called PEG tubes or G tubes. The tube allows you to receive nutrition

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Classification: Internal Use

directly through your **stomach.** This type of feeding is also known as enteral feeding or enteral nutrition.

◊ Indications for a PEG Tube:

- Dysphagia (e.g., stroke, ALS, Parkinson's disease)
- Neurological disorders affecting swallowing
- Head/neck cancer
- Chronic malnutrition or failure to thrive
- Prolonged unconsciousness or coma.

◊ Feeding via PEG Tube:

- Check for residuals before each feeding (for continuous feeds, check every 4 hours). If gastric **residual is >250 mL**, hold feeding and reassess.
- Flush with 30-50 mL of water before and after feeding to prevent clogging.
- Administer medications separately, flushing with 15-30 mL of water between each med.
- Position the patient upright (30-45°) during and at least 30-60 minutes after feeding to prevent aspiration.

◊ PEG Tube Maturation:

- After PEG tube placement, the body **forms a tract (path)** between the skin and stomach.
- 1–2 weeks: Tract starts forming → still weak, do not try to reinsert the tube.
- 4–6 weeks: Tract fully matures → safe to reinsert tube if needed.
- If tube dislodgement occurs less than 7 days after placement:
    - Tract may not be ready → reinserting tube directly is dangerous.

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- Must use surgical or endoscopic replacement to ensure correct placement.
- Key Point:
    - Always allow the PEG tract to mature before attempting reinsertion to avoid complication

◊ PEG Tube Complications:

- **Infection:** Redness, swelling, or pus at the stoma site.
- **Tube blockage or dislodgement:** Tube gets clogged or comes out.
- **Bleeding or gastric perforation:** Rare but serious; can occur during insertion or if tube irritates stomach lining.
- **Leakage around the stoma:** Fluid or gastric contents leak around the tube site → can irritate skin.

➢ Celiac disease

- An autoimmune disorder in which ingestion of **gluten** (found in wheat, barley, rye) triggers an immune response that **damages the small intestine villi**, leading to malabsorption.

◊ Characteristics:

- Pale colored stools **do not contain blood.**
- Chronic diarrhea or constipation
- Abdominal bloating and pain
- Weight loss and malnutrition
- Fatigue
- Anemia (due to iron deficiency)
- itchy skin rash
- In children: failure to thrive, delayed growth.

◊ Indication Intervention for a client with celiac disease

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- Teach Client about a gluten free diet.
- Instruct Client to avoid alcohol.
- No antibiotic is treated by diet
- Diet Client may prescribe **Ferrous Sulfate** (Iron supplement) to prevent or treat anemia.

◊ This Patient should take diet free gluten food like:

- Choose Whole Milk - Backed Potato – avocado - Brown- Grilled Chicken-Corn

◊ **What is Ferrous Sulfate?**

- An oral iron supplement used to treat and prevent iron-deficiency anemia.

◊ Indications:

- Iron-deficiency anemia
- Increased iron needs (pregnancy, growth spurts)
- Blood loss (menstruation, GI bleeding)

◊ Nursing Considerations:

- Take on an **empty stomach for better absorption** (1 hour before or 2 hours after meals).
- If GI upset occurs, it can be taken with food (though absorption decreases).
- Avoid taking with calcium, antacids, or dairy products as they reduce iron absorption.

◊ Side Effects:

- Common: constipation, dark stools, nausea, stomach cramps.
- Serious: allergic reactions (rash, itching, swelling), severe GI distress.

◊ Patient Teaching:

- Expect dark or greenish stools (normal).

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Classification: Internal Use

- Increase fluid and Fiber intake to prevent constipation.
- Do not crush or chew tablets, **swallow whole.**
- Keep out of reach of children (iron overdose is toxic).
- Avoid taking with coffee, tea, or dairy products.
- Report signs of overdose: vomiting, diarrhea, abdominal pain, dizziness.

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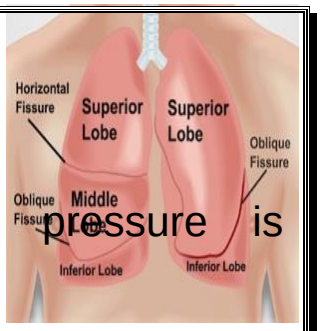
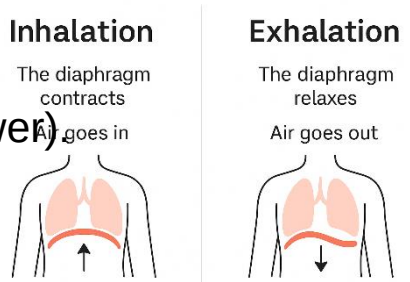
4- Respiratory system

➢ Lungs:



- **Pressure Dynamics:**
  - During **inhalation**, negative intrapulmonary pressure is generated, allowing air to flow into the lungs.
  - During **exhalation**, positive intrapulmonary pressure is generated, forcing air out of the lungs.



◊ Lung Anatomy & Function

- **The right lung** has 3 lobes (upper, middle, lower).
- **The left lung** has 2 lobes (upper, lower).
- **The diaphragm**:
  - is the primary muscle responsible for **respiration.**
  - **Contracts during inhalation and relaxes during exhalation.**
- **Gas exchange Occurs in the alveoli** via **diffusion**:
  - **Oxygen (O_2)** moves **from alveoli into the capillaries (blood)**.
  - **Carbon Dioxide (CO_2)** moves **from capillaries (blood) into alveoli** to be exhaled

∇ Common Respiratory Disorders on NCLEX:

- 1-Pneumonia.
- 2-Chronic Obstructive Pulmonary Disease (COPD).
- 3-Asthma.
- 4-Pulmonary Embolism (PE).
- 5-Tuberculosis (TB).
- 6-Pneumothorax.
- 7. Cystic Fibrosis (CF)

➢ Pleurisy:

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- is the **inflammation of the pleura**, which are the two thin layers of tissue surrounding the **lungs and lining the chest cavity.**

◊ Causes:

- **Infections** (especially viral or bacterial pneumonia)
- Pulmonary embolism
- Chest trauma
- Lung cancer

◊ Characterised by:

- Chest Pain that usually increased an **inspiration or with Cough**
- A **pleural Friction rub** is auscultated in the lateral lung fields over the area of inflammation. **The Sound** is produced by **the two layers rubbing together** and Can Indicate pleurisy a Complication of Pneumonia.

◊ NCLEX Nursing Interventions:

- **Pain management**: NSAIDs or analgesics (e.g., ibuprofen)
- Encourage **splinting the chest** when coughing.
- **Positioning**: **Position the patient on the affected side to reduce pleural pain"** is commonly tested.
- **Monitor respiratory status**.
- Treat the **underlying cause** (e.g., antibiotics for infection).
- Educate on **deep breathing** exercises to prevent complications like pneumonia.

➢ **Acute Respiratory Distress Syndrome (ARDS) and Acute Respiratory Failure (ARF):**

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Classification: Internal Use

- **Both are critical conditions** related to severe respiratory distress. Although they share some similarities in terms of symptoms and clinical outcomes.

∇ **Acute Respiratory distress syndrome:**

- A severe inflammatory lung condition causing **widespread alveolar damage**.
    - **Alveoli** = tiny air sacs in the lungs where **gas exchange (O_2 and CO_2)** occurs.
    - **Alveolar damage** = injury or destruction of these sacs → reduces the lungs' ability to oxygenate blood and remove carbon dioxide.
- Leads to **fluid buildup in alveoli** → impaired gas exchange → severe hypoxia.
- **ARDS** prevents your lungs **from filling up with air** and causes dangerously **low oxygen levels** in your blood (hypoxia).

◊ What causes acute respiratory distress syndrome (ARDS) and the most risk factor of ARDS?

- **Sepsis:** Sepsis is the most common cause of ARDS. It can happen when you have a **serious infection in your lungs (pneumonia)** or other organs with widespread inflammation.
- **Aspiration pneumonia:** Aspiration of **stomach contents** into your **lungs** may cause severe lung damage and ARDS. Aspiration is when food, liquid or other substances get into **your airway and lungs.**
- **Blood transfusions:** You're at risk for **ARDS if you receive more than 15 units** of blood in a short period of time.
- **COVID-19:** The COVID-19 virus may develop into severe ARDS.

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- **Pancreatitis:** Severe inflammation in your pancreas.

◊ Position:

- Should put the Patient on **prone position**.

⇨ Clinical manifestations for acute respiratory distress syndrome

- Mental States Change (anxiety, agitation, restlessness, and confusion)
- Hypoxia, tachycardia.
- Tachypnea (increase respiratory rete), shortness of breathing, increase work of Breathing.
- Accessory muscle use, intercostal retractions.

∇ **Acute respiratory failure:**

- May occur due to **exacerbation** of chronic conditions like **COPD** or **Asthma**, or acute illnesses such as **Pneumonia** or other **pulmonary diseases**.
- It is a **life-threatening condition** characterized by the lungs' inability to:
    - **Oxygenate the blood adequately** (hypoxeia).
    - **Eliminate carbon dioxide efficiently** (hypercapnia).

◊ The Nurse Should assess:

- Altered mental Status Change (Confusion, agitation, and restlessness)

◊ Clinical manifestations of respiratory Failure:

- Respiratory acidosis.
- **Paradoxical Breathing** (Chest and abdomen move in opposite motion)
- **Mental Status Change** (restlessness, agitation, confusion, lethargy)

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- **Absence of Wheezing** (Silent chest).
- Dyspnea.

◊ In Case nurse active RRT for client acute respiratory distress the immediate **Nursing Actions (while waiting for RRT):**

- Place patient in **High Fowler's position**.
- Perform **oropharyngeal suction** (if secretions present).
- Administer **100% O_2 via non-rebreather mask**.
- **Assess lung sounds** frequently.
- **Notify HCP** (health care provider).

➢ **Pulmonary Embolism:**

- **A pulmonary embolism** is a blood clot that b**locks and stops blood flow to an artery in the lung**. In most cases, the blood clot starts in a **deep vein in the leg** and travels to the lung.

◊ Manifestations:

- Dyspnea.
- Chest Pain
- Hypoxia
- Tachycardia
- Right Lower extremity redness is edema.

◊ Pulmonary embolism Risk Factor:

- Smoking
- Obesity
- Estrogen therapy (including oral contraceptives)
- History of thrombotic events (blood clots)

◊ Pulmonary Embolism (PE) – Anticipated Prescriptions:

- **Anticoagulants**:

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Classification: Internal Use

- **Heparin (IV infusion)** → immediate effect.
- **Enoxaparin (Lovenox, SQ)**
- Purpose: Prevent extension of existing clot and formation of new clots.

- **Analgesics**:
  - **Acetaminophen** for pain and fever.
  - Avoid NSAIDs because they increase bleeding risk when combined with anticoagulants.
- **Thrombolytic Therapy (for massive PE):**
  - Example: **Alteplase (tPA)**.
  - Purpose: Dissolves the clot in life-threatening cases.
- **Surgical Intervention**:
  - **Embolectomy:** emergency surgical removal of emboli blocking pulmonary circulation.
  - **Thrombectomy:** removal of thrombus (blood clot) if identified as the source.
  - Indicated if anticoagulation/thrombolysis fails or in hemodynamic instability.

◊ **Heparin – Nursing Interventions**

- **Administration**
  - Administer **via IV infusion pump** for precise and safe dosing.
  - **Never** give Heparin IM (risk of hematoma).
- **Pre-assessment**
  - Ask about **recent surgery** or history of **bleeding/hemorrhagic disorders**.
  - Collect **baseline CBC** and **coagulation studies** (platelets, aPTT).

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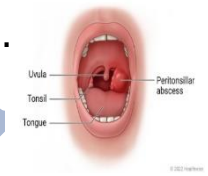
- **Monitoring**
  - Monitor **platelet count** regularly
  - Observe for **signs of bleeding**: bruising, bleeding gums, epistaxis, hematuria, tarry stools.
- **Safety Checks**
  - **Double-check infusion rate and dose** with another licensed nurse.
  - Keep **Protamine Sulfate (antidote)** readily available.



➢ **Peritonsillar abscess:**

- A **complication of tonsillitis** where pus collects near the tonsils.
- Usually caused by **bacterial infection**, often **Group A Streptococcus**.

◊ Symptoms:

- Severe **sore throat** (often **one-sided**)
- **Fever**
- **Muffled or "hot potato" voice**
- **Difficulty swallowing (dysphagia)**
- **Trismus** – inability to open the mouth fully
- **Swollen, tender lymph nodes**
- **Drooling** (especially in children)

◊ Treatment:

- **Needle aspiration** or **incision and drainage (I&D)** of abscess
- **Antibiotics**: IV or oral (commonly penicillin, clindamycin, or amoxicillin-clavulanate)

◊ Pain management and hydration:

- **Airway Assessment**:

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Classification: Internal Use

- Monitor for signs of **airway obstruction**: stridor, labored breathing.
- Be prepared for **emergency airway support** (e.g., tracheostomy).

- **Positioning:**
  - **Upright position** to reduce risk of aspiration.
- **Swallowing & Hydration:**
  - Monitor for **difficulty swallowing** → risk of aspiration and dehydration.
- **Education**
  - Teach patient to **complete full course of antibiotics**.
  - Encourage **hydration and pain management** at home.

➢ Bronchoscopy:

- A Procedure using a thin, lighted tube (bronchoscope) to directly view the airways and lungs.

◊ Purpose:

- Obtain mucus or tissue samples (biopsy).
- Remove foreign bodies or airway blockages.

◊ Complications:

- **Hemorrhage:**
  - Bright red sputum = active bleeding → report immediately.
- **Pneumothorax:**
  - Sudden chest pain, shortness of breath.
- **Hypoxia:**
  - Monitor SpO_2 during and after procedure.
  - Sore throat & hoarseness are common post-procedure.

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◊ NCLEX Nursing Priorities:

- **Pre-procedure:**
  - Assess allergies, anticoagulant use, and baseline vitals.
  - Obtain informed consent.
  - NPO for 6–8 hours prior to procedure to reduce aspiration risk.
- **During procedure:**
  - Monitor vitals and oxygen saturation.
  - Be ready for emergency airway management.
- **Post-procedure:**
  - Monitor airway and breathing.
  - Check for hemorrhage (bright red sputum).
  - Observe for signs of pneumothorax (chest pain, dyspnea, decreased breath sounds).

➢ **Guillain-Barre syndrome:**

- An autoimmune condition where the body's immune system attacks peripheral nerves.

◊ **Causes:**

- Often follows a **respiratory or gastrointestinal infection** (days to weeks after).
- Exact cause is unknown.

◊ Autonomic Dysfunction:

- Heart rate changes: Bradycardia or tachycardia.
- Blood pressure fluctuations: Hypertension or hypotension
- **Early Symptoms:**
  - Weakness, numbness, or tingling usually starting in the **hands and feet**.

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- **Progression:**
  - These sensations can rapidly spread upward (**ascending paralysis**) accompanied by **loss of reflexes**.
- **Critical Complication:**
  - **Neuromuscular respiratory failure** is life-threatening.
  - Respiratory rate and depth must be monitored closely.
  - increasing difficulty walking and muscle weakness spreading upward
  - **Respiratory distress** if the diaphragm or respiratory muscles are affected, potentially leading to **respiratory failure**
  - **Facial muscle weakness**, causing difficulty swallowing or speaking (cranial nerve involvement)

◊ Assessment:

Spirometry is the gold standard for detecting early respiratory failure in GBS.

◊ **Nursing Interventions:**

◊ **Monitor Respiratory Status:**

- Respiratory failure is a common complication in GBS, especially if diaphragmatic paralysis occurs.

◊ **Plasma Exchange (Plasmapheresis):**

- Plasmapheresis is used in the acute phase to remove harmful antibodies from the bloodstream.
- It is typically started within the first two weeks of symptom onset.

◊ **Intravenous Immunoglobulin (IVIG):**

- Administer IVIG to reduce the immune system's attack on the nervous system.

◊ NCLEX Tips:

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- **Top priority:** airway and respiratory monitoring
- Autonomic dysfunction can cause **cardiac instability** → continuous cardiac monitoring may be required
- Early intervention with **plasmapheresis or IVIG** improves outcomes.

➢ **Chest tube:**

- a medical device inserted into the **pleural space** to remove **air, blood, or fluid** and help re-expand the lung.
- It is commonly used for conditions like **pneumothorax, hemothorax, or pleural effusion.**

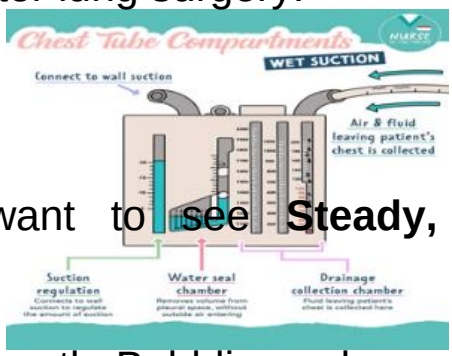
◊ The goal from the chest tube:

- **Restore the Lung** to normal size (**re-expand** our Lung bag) and this helps us to **exchange oxygen and** get that **negative Pressure.**

◊ Indications for Chest Tube Placement:

- **Pneumothorax** – Air in the pleural space causing **lung collapse.**
- **Hemothorax** – Blood in the **pleural space.**
- **Pleural Effusion** – Excess fluid in the **pleural space.**
- **Empyema –** Pus in the pleural cavity due to infection.
- **Post-Thoracic Surgery –** To drain air/fluid after lung surgery.

▽ **important Parts for Chest tube:**



◊ **The first, Suction Control Chamber:**

- In the **suction control chamber,** we want to see **Steady, Continuous Bubbling**. (Image A)
- There is **no Vigorous bubbling** it should be gentle Bubbling only.

◊ **Second, Water Seal Chamber:**

◊ Air Leak

- Assess *for bubbling in the water seal chamber.*

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Classification: Internal Use

- **Continuous bubbling or Vigorous continuous bubbling** → indicates an abnormal air leak, which may come from:
    - Patient's insertion site
    - tubing connections
    - Crack or defect in the chest drainage system
- **Intermittent bubbling** may occur with coughing or deep inspiration early on.

◊ Tidaling (Fluctuation):

- Normal movement of fluid in the water seal chamber:
    - **Rises** with inspiration (negative intrathoracic pressure)
    - **Falls** with expiration (positive intrathoracic pressure)
- Presence of tidaling:
    - lung has **not fully re-expanded yet**.
- Disappearance of tidaling may indicate:
    - **lung re-expansion** or **obstruction/kink** in the tubing (must assess carefully).

◊ **Third, Collection chamber:**

- Collects blood, fluid,drained from the pleural space.

◊ Nursing Responsibilities:

- Monitor the amount of drainage
- Record output at regular intervals (every shift or per policy).
- Report drainage >100 mL/hr (especially if bloody) → may indicate hemorrhage.

◊ Positioning:

- Keep the system below the level of the chest to prevent backflow.

◊ System management:

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- Do not empty the chamber; replace the entire system when full to maintain sterility and function.

◊ NCLEX Tip:

- Sudden increase in drainage → suspect hemorrhage.
- Sudden stop in drainage → suspect tube obstruction (clot, kink, or dislodgment).

◊ **Assess Priority Care – Client with Chest Tube:**

- Frequent Respiratory Assessment
  - Monitor respiratory status (rate, depth, effort, O_2 saturation).
  - Auscultate breath sounds at least every 2 hours.
  - Report diminished or absent breath sounds → may indicate poor oxygen exchange or tube malfunction.
- Inspect Dressing at Insertion Site:
  - Check for drainage, pus, or excessive blood.
  - Presence of pus or infection signs must be reported to the HCP.

◊ **Chest Tube Immediate Actions & Key Points:**

◊ **If the chest tube is knocked or tipped over:**

- If the system **is intact and still connected**, simply **stand it upright** and make sure all tubing is free of kinks.
- Inspect all connections and the drainage level in the collection chamber.
- If the system is **disconnected from the drainage unit**, place the distal end of the tube **immediately into a container of sterile water** (temporary water seal), call the HCP, and prepare to reconnect/replace the system per protocol.

- **If the chest tube is accidentally pulled out of the patient**

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Classification: Internal Use

- Have the client **exhale forcefully and cough** or **perform a Valsalva** (bear down) to push air out and reduce air entry.
- **Apply an occlusive petroleum-gauze dressing** and tape **on three sides only** (leave one side untaped to allow air to escape and avoid a tension pneumothorax).
- Monitor respiratory status and vitals, call the HCP immediately, prepare for possible chest tube reinsertion or further interventions.

- **Essential bedside equipment:**
  - Sterile petroleum gauze (occlusive)
  - Sterile clamps (used only per facility policy and briefly)
  - Sterile normal saline (for irrigation if authorized)
  - Replacement chest drainage kit (if available)
- **How to remove the chest tube:**
  - Instruct client to **take a deep breath, exhale, and bear down (Valsalva)** while tube is removed.
  - Apply occlusive dressing immediately.
  - Monitor respiratory status and obtain a chest x-ray per protocol to confirm lung re-expansion and absence of pneumothorax.
- **Big safety rules:**
  - **Continuous bubbling in the water-seal chamber is abnormal** → indicates an air leak; investigate immediately.
  - **Do not clamp the chest tube for long periods** (risk of tension pneumothorax). Short clamping only if ordered or per facility policy (and monitored).
  - **Do not strip the tubing** (contraindicated — can create dangerous negative pressures and damage).

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- Keep the drainage system **below chest level** to prevent backflow

➢ Mechanical Ventilation:

- **a life-support technique** that uses a machine (ventilator) to assist or replace spontaneous breathing. It's typically used in patients with respiratory failure, **severe airway obstruction**, or when oxygenation and ventilation are insufficient despite other measures.

◊ Types of Ventilation:

- **Positive Pressure Ventilation (PPV):** Most commonly used, where air is pushed into the lungs.
- **Invasive Ventilation:** Involves the use of an endotracheal tube (ETT) or tracheostomy tube.
- **Non-invasive Ventilation (NIV):** Uses a mask or nasal prongs (e.g., CPAP, BiPAP) to deliver **positive pressure without intubation**.

◊ Complications of Mechanical Ventilation:

- Ventilator-Associated Pneumonia (VAP).
- Barotrauma.
- Atelectasis.
- Airway Injury.

◊ Nursing Interventions for Mechanical Ventilation:

1. Monitor Respiratory Status:

- **Assess the patient's oxygenation**: Monitor oxygen saturation (SpO2), arterial blood gases (ABGs), and ventilator settings (e.g., FiO2, PEEP).
- **Monitor for signs of respiratory distress**: Look for increased respiratory rate, use of accessory muscles, or cyanosis.

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- **Ventilator Settings:** Regularly check and document ventilator settings, including tidal volume, respiratory rate, FiO2, PEEP, and pressure support.

2. Ensure Proper Tube Placement:

- **Verify Endotracheal Tube (ETT) Placement:** Confirm placement of the ETT by **auscultating bilateral breath sounds**, assessing for equal chest rise, and performing a chest X-ray.
- **Check the Cuff Pressure:** Ensure the endotracheal tube cuff pressure is between 20-30 cm H2O to prevent injury to the trachea and prevent aspiration.

3. Prevent Ventilator-Associated Pneumonia (VAP):

- **Oral care:** Perform frequent oral hygiene, including brushing teeth and using chlorhexidine mouthwash, to prevent bacterial growth in the oral cavity.
- **Head of the bed elevation:** Keep the head of the bed elevated at 30-45 degrees to reduce the risk of aspiration.

4. Maintain Adequate Analgesia:

- **Analgesia:** Administer analgesics as needed to relieve pain, especially during procedures such as suctioning or positioning.

◊ Indications for Mechanical Ventilation:

- Respiratory failure (PaO_2 < 60 mmHg or $PaCO_2$ > 50 mmHg with acidosis).
- Apnea or severe respiratory distress.
- Neuromuscular disorders (e.g., Myasthenia Gravis, Guillain-Barré Syndrome).

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- Postoperative support (e.g., after general anesthesia).
- Severe lung conditions (e.g., ARDS, COPD exacerbation).

◊ If the client has a dropping 0_2 Saturation:

- Assessment, Auscultate to the Lung.
- Suction, we always **suction out** basically on the way out **never in.** Never apply suction **when inserting** the catheter in that ET tube
  - **Ten Second role** or Less goal for suction
  - Always give 100% oxygen 30 Second before suction
  - Never Suction before ABG
  - Avoid Suction routinely do when absolute needed.

◊ Major Infection Risk VAP:

  - Ventilator Associated Pneumonia

◊ Best Indicators of VAP:

- Positive sputum culture (gold standard).
- Fever ≥100.3°F (38°C).
- New infiltrate on chest X-ray.

◊ Prevention (VAP Bundle):

- Daily sedation interruption & weaning trials (avoid continuous heavy sedation).
- Elevate head of bed **30–45°**.
- Oral care with **chlorhexidine every 2 hrs**.
- Frequent hand hygiene.
- Reposition patient every 2 hrs.
- Continue NG tube feeding if indicated → **never bolus feed** (risk of aspiration).

◊ Ventilator Alarms:

  - **Low-Pressure Alarm (Loss of Volume / Leak)**

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Classification: Internal Use

- Causes:
  - Ventilator tubing disconnected (most common).
  - Cuff leak in endotracheal tube.
  - Tube displaced / accidental extubation.
  - Loose connections in circuit.

◊ Nursing Interventions:

- Reconnect ventilator tubing immediately.
- Check ET tube cuff pressure (**20–25 cm H_2O**).
- Assess for accidental extubation (listen for stridor, check tube position).
- Tighten all loose connections.

◊ High-Pressure Alarm (Resistance / Obstruction):

- **Causes:**
  - Secretions or mucus plug → airway obstruction.
  - Patient biting the ET tube (common if agitated).
  - Kinked or compressed tubing.
  - Water condensation in tubing.
  - Bronchospasm or ↓ lung compliance (ARDS, pneumothorax).
  - Coughing, gagging, or fighting the ventilator.

◊ Nursing Interventions:

  - Suction airway to clear secretions.
  - Straighten kinked tubing.
  - Drain water from ventilator tubing.
  - Assess for agitation/anxiety → provide sedation if needed.
  - Assess lung compliance issues → check breath sounds, evaluate for pneumothorax.

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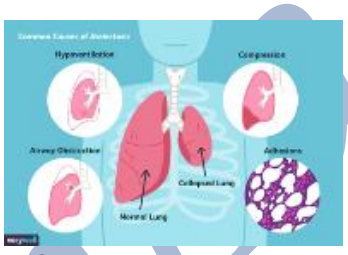
◊ **Weaning:**

- Priority Client must be in **respiratory alkalosis** before Weaning.
- **Respiratory acidosis** is the worst of the body in Case of the Provider wants to disconnect in that case hold the order and contact primary provide.



◊ Two Major Risks after Extubation:

- **Atelectasis → Pneumonia (VAP):**
  - Alveoli collapse → impaired oxygenation and infection risk.
- Prevention:
  - Encourage incentive spirometer use every hour.
  - Deep breathing & coughing exercises.
  - Early ambulation and positioning changes.
  - Commonly prescribed after any surgery to expand and reopen alveoli.
- **Airway Obstruction – Stridor:**
  - Stridor = high-pitched, squeaky, musical noise during inspiration.
  - Indicates laryngeal edema / severe airway narrowing.
  - This is an emergency → always report to HCP immediately.

◊ NCLEX Tips:

- After extubation → always keep emergency intubation equipment at bedside.
- Monitor for stridor (early airway obstruction).
- If severe distress + stridor → call rapid response & prepare for reintubation.

➢ **Tracheostomy Care:**

- A surgical opening in the trachea for long-term airway support.

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Classification: Internal Use

- **1- Priority Care:**
- For a **new tracheostomy**
  - Ensure ties are not too tight (1 finger should fit under ties).
  - Always keep at bedside: **Ambu bag + spare trach tube (same size and one smaller)**.
- **2. Indications:**
  - Prolonged mechanical ventilation (>2 weeks).
  - Airway obstruction (tumor, trauma, swelling).
  - Neurological conditions (stroke, spinal cord injury, ALS).
  - Severe respiratory failure (COPD, ARDS). often need long-term ventilation, airway clearance, and reduced work of breathing, which makes a tracheostomy the safest choice over prolonged intubation.
- **3. Emergency Situations:**
- **Accidental Decannulation (Tube Falls Out):**
  - **< 7 days post-op → Do NOT reinsert blindly!**
  - Call for help.
  - Ventilate with BVM via the mouth.
  - **> 7 days post-op** → Attempt to insert a new trach tube immediately.
  - If unable → Cover stoma with sterile gauze & ventilate with BVM.
- **Blocked Tracheostomy Tube:**
  - First → **Suction**.
  - If not effective → Remove **inner cannula** (if present).
  - If still blocked → Prepare for **emergency replacement**. Outer Cannula

◊ **NCLEX Example Question:**

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- A client with a new tracheostomy suddenly coughs and the tube falls out. What is the nurse's FIRST action?
    - Answer: **Call for help and ventilate with a bag-valve mask via the mouth (if <7 days post-op).**

∇ Common Respiratory Disorders:

◊ 1-Chronic obstructive pulmonary disease (COPD):

- A progressive (gets worse over time) and irreversible lung disease characterized by airflow limitation that is not fully reversible
- It includes two main conditions:
    - **Chronic Bronchitis**, and **pulmonary Emphysema**

◊ Risk Factors:

- Smoking.
- Environmental exposure (e.g., air pollution, dust)
- Genetic factors.

◊ Diagnostics:

- Chest X-ray: May show hyperinflation.
- Arterial Blood Gas (ABG): Can show hypoxemia and hypercapnia high CO2 levels).

◊ Nursing Interventions:

- **Oxygen Therapy:** Monitor oxygen saturation levels and ensure the patient is receiving adequate oxygen.
- **Positioning:** Encourage the patient to sit upright and lean forward to help with breathing (tripod position).
- **Breathing Techniques:** Teach pursed-lip breathing to help control shortness of breath.

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- **Monitor for Complications**: Watch for signs of respiratory infections, exacerbations, or pneumothorax.

◊ Which Medications are avoided to COPD?

- Avoid any Medication will decrease the respiratory rate like **sedative**.
- No opioids (Morphine, hydromorphone, Hydrocodone, oxycodone.
- Benzodiazepines and sedatives like **diazepam, Lorazepam**.

◊ Lab Value for COPD Clients:

◊ **ABG:**

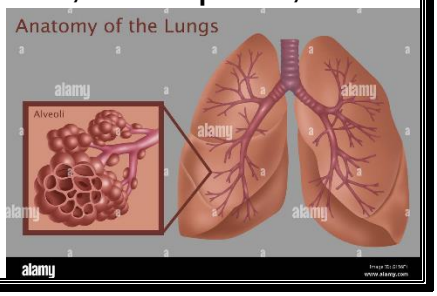
- ↑ **$PaCO_2$ (hypercapnia):**
- Leads to respiratory acidosis.
- Severe hypercapnia → risk of respiratory failure.
- Management: Place the client upright and initiate Non-invasive ventilation (BiPAP).
- ↓ **PaO_2 (hypoxemia):**
- Clinical signs include mental status changes: agitation, restlessness, confusion, altered level of consciousness

◊ The Test that indicates COPD:

- **Elevate RBCs** (polycythaemia). Due to **chronic hypoxemia**, the body compensates by producing more red blood cells to carry oxygen. air sacs **(alveoli)**

∇ **There are two main types of COPD:**

◊ **Pulmonary Emphysema:** is a chronic **lung condition in which** the air sacs **(alveoli)** may be destroyed, narrowed, collapsed, and stretched.



◊ Sign and symptoms:

- Present pink with purse lip breathing:

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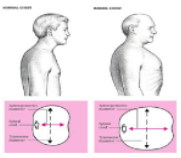
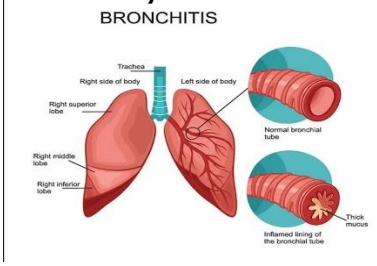


- No Chronic Cough.
- **Breathing Difficulties**
  - Shortness of breath, especially with activity
  - May assume the **tripod position** (leaning forward with hands on knees) to ease breathing
  - Use of **accessory muscles** to help with respiration

◊ Management:

- Smoking cessation.
- Bronchodilators and corticosteroids manage symptoms.
- Oxygen therapy if there are low oxygen levels.
- **Pursed lip breathing exercise:**
  - a breathing exercise **that helps you slow your breathing and inhale and exhale more air.** You slowly inhale through your nose and gently exhale through pursed lips.
  - **Pursed lip breathing** makes it easier to perform physical activities and reduces stress. (Exhale for four second Through Pursed lips and Inhale For two second through nose keep mouth Closed). Can help you improve shortness of breath.
  - If you have a lung disease, such as asthma or chronic obstructive pulmonary disease **Emphysema is irreversible, and This Procedure will not restore damage.**



◊ **Second, Chronic Bronchitis:**

- a **long-term inflammation** of the **bronchial tubes** (the airways that carry air to the lungs).

◊ What Happens in the Condition?

- The **bronchial tubes become inflamed and narrowed**.

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- As a result, the **walls of the airways thicken**, making it harder for air to pass through.
- **Extra mucus** is produced due to constant irritation The mucus **blocks the already narrowed tubes** even more.
- The body tries to **clear the mucus** through a **persistent cough**, which becomes a **key symptom**.

◊ Sign and symptoms:

- Persistent cough with thick, yellow or green sputum.
- Shortness of breath, particularly with exertion.
- wheezing
- Cyanosis (bluish skin, especially in lips and fingers due to low oxygen).
- Edema (swelling of legs and feet) due to right heart failure (cor pulmonale).

◊ To optimise nutritional intake:

- **Use a bronchodilator** to decrease the work of breathing so their energy can be focus on eating.
- **Drink Fluid between meals**, Rather Than during or after, to decrease pressure on diaphragm while eating.
- **Eat Small** Frequent meals.
- **Avoid** broccoli, beans, cabbage.
- **Exercise** with COPD client should be **refrain** for at least one hour before and one hour after eating.

◊ Management:

- **Supplemental oxygen** should be **titrated carefully**.
    - **Goal:** Keep oxygen saturation between **88–92%** (to avoid suppressing respiratory drive in CO_2 retainers).

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- Mucolytics (to thin secretions).
- Antibiotics (for recurrent infections).
- **Chest physiotherapy:** To help clear secretions.
- **Vaccinations:** Influenza and pneumococcal vaccines.
- **Nutrition:** Balanced diet (patients are often overweight)
- **Perform Huff Cough** Technique **Huff Cough Technique**
    - **Purpose:**
    - Helps the patient **clear mucus from the lungs** without excessive strain on the airways.
    - **Procedure / Steps:**
    - **Take a medium breath in** – inhale moderately.
    - **Exhale forcefully with an open mouth, saying "huff"** – a short, quick exhalation.
    - Do **not forcefully cough** yet; just a controlled "huff."
    - **Repeat 2–3 times** as needed.
    - **Follow with a normal cough** to remove any remaining mucus.

◊ NOTE:

- **in Case Client is stable** with no Cause of shortness the nurse should Coaching the Client Through **breathing exercise.**
- **In Case Client has Clear** Sound so **albuterol** will not helpful.
- **Consuming adequate nutrition** is difficult for Client with COPD because **chewing and swallowing** increase the Work of breathing and a full Stomach increase pressure on diaphragm so, client **get loss weight.**

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Classification: Internal Use

➢ 2-Asthma:

- a chronic **respiratory disease** that causes inflammation and temporary narrowing of the **airways (bronchi and bronchioles**), leading to difficulty breathing.
- Airway **inflammation + bronchospasm** (muscle tightening).
- Causes **temporary narrowing** of the bronchi → **reversible** with treatment.
- Triggered by allergens, exercise, cold air, or irritants.

◊ What is an asthma attack?

- When you breathe normally, **muscles around your airways** are relaxed, letting **air move easily** and quietly. During an asthma attack, three things can happen:
    - Bronchospasm: The muscles around the airways constrict (tighten). When they tighten, it makes your airways narrow. Air cannot flow freely through constricted airways.
    - Inflammation: **The lining of your airways** becomes swollen. Swollen airways don't let as much air in or out of your lungs.
    - Mucus production: During the attack, your body creates more mucus. This thick mucus clogs airways.

◊ Sign and Symptoms:

- **Wheezing**: A high-pitched whistling sound during exhalation, which is a hallmark symptom.
- **Shortness of breath (dyspnea):** Difficulty breathing, especially during an asthma attack.
- **Coughing:** Often worse at night or early in the morning.
- **Chest tightness:** A feeling of pressure or constriction in the chest.
- Increased mucus production (especially during an exacerbation).

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- Accessory Muscle use with **Paradoxical Breathing (**an abnormal breathing pattern where the chest or abdominal wall moves **opposite** to what it normally should during breathing).

◊ Diagnosis of Asthma:

- **Spirometry (Pulmonary Function Tests):** Measures how much air the patient can exhale and how quickly.
    - In asthma, the forced expiratory volume (FEV1) is reduced, but it can improve with bronchodilator use
- **Peak Flow Monitoring:**
    - Measures the **peak expiratory flow rate** (PEFR) and helps track asthma control.
- **Chest X-ray:** To rule out other causes of symptoms, though not typically diagnostic for asthma.
- **Blood tests:** May show increased levels of **eosinophils** (a type of white blood cell involved in allergic reactions).

◊ Nursing Interventions:

- **Assess Respiratory Status:**
- Monitor for signs of respiratory distress, such as increased breathing work, use of accessory muscles, and cyanosis.
- Measure peak flow and assess for changes in lung function.
- **Medications:**
- Administer bronchodilators as prescribed during an acute asthma attack.
- Administer corticosteroids to control inflammation and prevent exacerbations.

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Classification: Internal Use

- Educate the patient about proper inhaler technique to ensure medication is delivered effectively.

◊ Patient Education:

- **Trigger avoidance:** Help the patient identify and avoid known asthma triggers (e.g., allergens, smoke, pollution).
- **Action plan:** Teach patients how to recognize worsening symptoms and follow their asthma action plan (e.g., when to use rescue inhalers and when to seek medical help).
- **Peak flow monitoring:** Teach the patient to monitor their peak flow at home and know when their readings indicate worsening asthma.
- **Emergency Care:**
- For acute asthma attacks, position the patient in a comfortable, upright position (e.g., tripod position).
- Administer prescribed medications (SABA, corticosteroids, oxygen).
- Monitor oxygen saturation levels closely.

◊ Biggest drugs avoid For Asthma:

- NSAIDS as (**Naproxen, Aspirin ibuprofen indomethacin and ketorolac)**

◊ Discharge Home from Hospital:

- Should understand how to Use **Peak Flow meters** he should use it and anticipate if there is a **severe asthma attack.**

◊ Peak flow meters:

- **A peak flow meter** is **a handheld device** that measures how well air moves out of your lungs.

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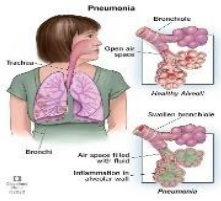
- During an asthma episode, your airways often narrow.
- **A peak flow meter can measure** this narrowing before you have any asthma symptoms.
    - Green Zones → this is the goal for the Client means asthma about 80-100 Under Control.
    - Yellow Zone→ Mellow zone Asthma is not 100% under Control So need **addition medication**.
    - Red Zone → Really bad Zone emergency treatment is needed immediately.

◊ What is the correct order on How to use a Peak Flow?

- **Stand or sit** in the upright position.
- **Put the Flow** meter Scale at Zero
- **Inhale** deeply.
- **Put the mouthpiece** to the mouth and create a good seal with lips.
- **Exhale quickly** and always record the reading.
- **Can repeat these two more times** with about five to 10 second In between.
- **Record only** one score that's highest score.

➢ **3-Pneumonia:**

- an **infection of the lungs** that causes inflammation in the air sacs (alveoli). The alveoli may fill with fluid or pus, making it difficult to breathe.



◊ Types of Pneumonia:

1. Community-Acquired Pneumonia (CAP):
    - Acquired outside of healthcare settings (e.g., at home, during daily activities).

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2. Hospital-Acquired Pneumonia (HAP):

- Acquired during a hospital stay, usually after 48 hours or more of admission.

3. Aspiration Pneumonia:

- Occurs when food, liquid, or vomit is inhaled into the lungs, introducing bacteria like **Anaerobes**, **Streptococcus species**, and **Gram-negative bacteria**.

4. Viral Pneumonia:

- Caused by viruses such as **influenza**, **respiratory syncytial virus (RSV)**, or **coronavirus**.

◊ Sign and symptoms of pneumonia:

- **Cough** (productive: yellow/green/rusty sputum in bacterial; clear/white in viral).
- **Fever & chills**.
- **Dyspnea** (shortness of breath).
- **Chest pain** (pleuritic).
- **Fatigue, malaise**.
- **Auscultation:** crackles, bronchial breath sounds, rhonchi.
- **Dullness on percussion**.
- **Tachypnea** (rapid breathing).
- **Unequal chest expansion** (sometimes).
- **Confusion** (esp. elderly).
- **Hypoxia, Cyanosis**.
- **Tachycardia, Hypotension**.
- **Respiratory distress** (accessory muscle use, nasal flaring).

◊ What is the best blood lab that shows effective treatment of Pneumonia after IV antibiotic?

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- White blood **Cells WBC should** be going down as infection is going down.

◊ Management and Treatment:

◊ **Antibiotic Therapy:**

- **Bacterial Pneumonia:** Common antibiotics include azithromycin for atypical pneumonia. ceftriaxone) for more severe cases.

◊ **Supportive Care:**

- **Oxygen therapy** for patients with hypoxia.
- **Fluids** to maintain hydration.
- **Antipyretics** (e.g., acetaminophen) for fever management.

◊ **Other Treatments:**

- **Nebulized therapies:** May be used in cases of severe respiratory distress to help open the airways.
- **Chest physiotherapy**: In certain cases, to help loosen and clear mucus from the lungs.

- Perform Chest Physiotherapy
- Ensure adequate hydration increase oral intake.
- Position the head 45–60-degree Fowler Position.
- **Assist Client to Perform Huff Coughing:**
  - Helps **clear mucus and secretions** from the lungs.
  - Useful because pneumonia causes increased mucus and fluid in the alveoli and airways.
  - Improves **airway clearance** and helps with **breathing**.

◊ Technique:

- **Sit upright** in a chair with your feet flat on the floor.
- **Inhale slowly and deeply** using your diaphragm (belly breathing).

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Classification: Internal Use

- **Hold your breath for 2–3 seconds.**
- Lean forward slightly and **forcefully exhale quickly** while saying "huff" (like you're fogging a mirror).
- **Repeat** the huff cough **once or twice more**.

◊ Complication:

- **Pleural effusion** Accumulation of excess fluid in the pleural space, which can impair breathing and cause chest pain.

◊ Risk Factor:

- Advanced age over 65 years.
- VAP« **Ventilator Associated Pneumonia»**

◊ What is worsening Pneumonia we must to report:

- Chest Pain during inhalation
- **Asymmetrical chest expansion** this Paradoxical breathing
- Acute respiratory distress syndrome
- Septic Shock Sever Infection.

◊ Discharge teaching:

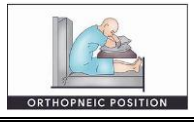
- **Avoid cough suppressants (antitussives)** such as **codeine**.
  - Coughing helps clear mucus and secretions from the lungs, so suppressing it can worsen the condition.
- **Get the pneumonia vaccine at least every 5 years.**
  - This helps prevent future pneumonia infections, especially for high-risk groups like older adults or those with chronic illnesses.

◊ What is the priority action to help relieve shorts of breathing?

- Elevate the head of the bed High flower Position,

◊ Alternate Position include:

- **Orthopneic position** sitting in a chair on the side of the bed or in bed leaning over.



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- **Tripod Position** Sitting in a chair leaning forward with hands or elbow resting.

➢ 4-Cystic fibrosis:

- A **genetic disorder** (autosomal recessive) that causes the body to produce **abnormally thick and sticky mucus**, mainly affecting the **lungs, pancreas, digestive system, and reproductive system**.

◊ Respiratory manifestation:

- Ineffective airway clearance.
- Chronic cough.
- Thick mucus production.
- Frequent respiratory infections.
- Wheezing, shortness of breath.
- Nasal polyps, sinus infections.
- Also, **cystic fibrosis damage alveoli** which can burst suddenly, resulting in **pneumothorax.**
- Clients with cystic fibrosis **have low baseline oxygen saturation** suddenly drop **Spo2 from 92% to 88 % on** room air indicate possible **mucus plug airway**.
- **Pulmonary capillary** can be damage, resulting in hemoptysis (bloody sputum).

◊ Gastrointestinal manifestation:

- **Steatorrhea** (fatty, foul-smelling stools).
- Poor weight gain despite good appetite.
- **Meconium ileus** in newborns (early sign).
- Malabsorption of nutrients.
- **Risk of infection** and chronic lung disease.

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◊ Treatment & Nursing Care (NCLEX Focus):

◊ **Medications:**

- **Bronchodilators** → open the airways (always given first).
- **Mucolytics:**
  - **Dornase alfa** → thins thick mucus, improves clearance.
  - **Acetylcysteine (Mucomyst):**
  - Breaks down mucus.
  - **Antidote for acetaminophen overdose.**
  - **Avoid in asthma patients** → may worsen bronchospasm.
- **Pancreatic enzymes** → given with **all meals/snacks**.
- **Fat-soluble vitamins (A, D, E, K)** → to replace deficiencies.
- **Antibiotics** → treat or prevent respiratory infections.
- **Nursing Interventions:**
  - **Chest physiotherapy (CPT)**.
  - Encourage coughing & deep breathing.
  - High-calorie, high-protein diet.
  - Monitor weight & signs of malabsorption.
  - Provide emotional & family support.
  - Infection prevention: **contact isolation,** especially from other CF patients (risk of cross-infection).

➢ **5-Tuberculosis:**

- **A highly contagious bacterial infection** caused by Mycobacterium tuberculosis, primarily affecting the lungs, but can spread to other organs (extrapulmonary TB).

◊ Transmission:

- **Airborne (**e.g., coughing, sneezing, talking).

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- **Requires airborne precautions** – negative pressure room, N95 mask.

◊ Sign and Symptoms:

- Persistent cough (3+ weeks)
- Hemoptysis (coughing up blood)
- Night sweats
- Fever
- Weight loss
- Fatigue
- Chest pain with breathing or coughing.

◊ Diagnosis:

- **TB Skin Test** (Mantoux/PPD):
  - Test →Sputum Culture, early Morning it should be done **3 Consecutive** days in the row for a positive test.
- Chest X-ray: Checks for active TB.

◊ TB Drugs:

- **Ethambutol** needs frequent **eye exam.**
- **Rifampin** taking it can cause certain body fluids, such as urine, sweat, and tears, to become **orange-red or brownish red in color**. This is a side effect that is **usually not harmful.**
- **Isoniazid (INH)** The Most tested TB drug «Client has to be **taking B6** to prevent their Peripheral neuropathy as side effect»

◊ Nursing Interventions (NCLEX Focus):

- **Airborne isolation** until 3 negative sputum cultures.
- N95 mask for healthcare workers.
- Negative pressure room.
- Educate about adherence to full medication course (very important!).

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- Monitor liver enzymes during therapy.
- Screen close contacts.

➢ **Pneumothorax:**

- A **pneumothorax** occurs when air **enters the pleural space** (the area between the lungs and the chest wall), causing the lung to collapse. This can happen spontaneously or due to trauma.
- **The severity of the pneumothorax** depends on the size and cause, and it may lead to symptoms like chest pain, shortness of breath, and reduced oxygen levels.

◊ **There are different types, such as:**

◊ Spontaneous pneumothorax:

- occurring without trauma, can be primary or secondary.

◊ Traumatic pneumothorax:

- caused by injury to the chest, such as rib fractures or a gunshot wound).

◊ Iatrogenic pneumothorax:

  - caused by medical procedures like biopsy or ventilator use.
  - **Air can enter the Pleural space** during or after invasive procedure on or near the Chest wall.

◊ Assessment for Client Suspected Pneumothorax.

- Auscultating breath Sound.

◊ Symptoms:

- Sudden chest pain on the affected side
- Shortness of breath (dyspnea)
- Tachycardia

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Classification: Internal Use

- Decreased breath sounds on the affected side
- Decreased oxygen saturation levels (depending on severity)

◊ Diagnosis:

- **Chest X-ray**: Shows air in the pleural space and lung collapse.
- **Physical Exam**: Decreased breath sounds, dullness to percussion on the affected side.

◊ Management:

- **Needle Aspiration** or **Chest Tube**: For larger pneumothoraxes or if symptoms are severe.
- **Oxygen Therapy**: To help re-expand the lungs and improve oxygenation.

◊ **Tension pneumothorax:**

- a severe, life-threatening form of pneumothorax.
- It occurs when **air enters the pleural space** but cannot escape. This builds up pressure in the chest, compressing the lung, and can also **push the heart and great vessels to the opposite side**, impairing blood circulation and breathing. This can cause a rapid decline in vital signs and needs urgent intervention **(typically needle decompression followed by chest tube insertion).**

◊ Symptoms:

- **Severe respiratory distress**: Marked dyspnea and tachypnea.
- **Hypotension:** Due to reduced venous return from the heart.
- **Distended neck veins:** Caused by increased venous pressure.
- **Tracheal deviation:** Trachea shifts toward the unaffected side
- Decreased breath sounds on the affected side.

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- Cyanosis: Due to reduced oxygenation.

◊ Diagnosis:

- **Physical Exam**: Key signs include tracheal deviation and distended neck veins.
- **Chest X-ray:** May show a collapsed lung, and/or hyper-expanded chest on the opposite side.

◊ Management:

- Immediate needle decompression: A needle is inserted into the second intercostal space, midclavicular line (for emergency decompression).
- Chest tube insertion: Followed by chest tube placement to allow continuous drainage of air.
- Oxygen therapy: To support oxygenation.

◊ RISK For:

- Respiratory Failure
- Decrease cardiac output.

◊ the Nurse Should prepare:

- Chest Tube Insertion.

◊ Tension pneumothorax:

- **is always a priority patient** → rapid deterioration
- **Tracheal deviation = late, emergency sign**
- If patient has chest trauma + absent breath sounds + ↓ BP → think **tension pneumothorax.**

Medications for Respiratory Clients (Asthma, COPD, etc.)

∇ **Albuterol (Short-acting Beta-2 Agonist – SABA)**

◊ Use:

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- **drug for acute asthma attacks.**
- Quickly opens bronchi to allow oxygen in
- **Important Notes:**
  - **Always shake inhaler before use**
  - Take **before steroids**
  - Causes **tachycardia** (↑ HR), **tremors**, **insomnia**

◊ NCLEX Tip:

- Common side effect = ↑ **heart rate** NOT a reason to stop unless HR is dangerously high.

∇ **2. Ipratropium (Anticholinergic Bronchodilator):**

◊ Use:

- **Dries secretions** (anticholinergic effect)
- Often used in **COPD** and with albuterol
- **Contraindications (Do NOT give if patient has):**
  - **Bowel obstruction.**
  - **Glaucoma**
  - **BPH** (Benign Prostatic Hyperplasia – enlarged prostate)

◊ NCLEX Tip:

- "Can't see, can't pee, can't spit, can't poop" = classic anticholinergic side effects.

∇ **Steroids (e.g. Prednisone, Fluticasone, Methylprednisolone)**

◊ Use:

- **Long-term control** – reduce **airway inflammation and swelling**
- **Not for acute attacks**

◊ Risks:

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- **Immunosuppression → infection, sepsis risk**

◊ Client Teaching:

- **Use spacers** to prevent oral infection (thrush)
- **Rinse mouth after use**, but **do not swallow water**
- Monitor for signs of infection (fever, sore throat)

◊ NCLEX Tip:

- Always give **bronchodilator (albuterol)** first, then **steroid.**

∇ Theophylline (Xanthine Bronchodilator)

◊ Use:

- Treats **asthma, bronchitis, emphysema**
- Relaxes bronchial muscles and opens airways
- **2nd-line drug** for asthma/COPD.

◊ Toxicity Alert:

- **Toxic if level ≥ 20 mcg/mL**
- Watch for **seizures**, **dysrhythmias**, **tachycardia**
- **Notes:**
- Requires **regular blood tests**
- Avoid caffeine and other stimulants.

◊ NCLEX Tip:

- Report any tremors, irregular heartbeat, or seizures IMMEDIATELY

∇ General Notes for All Respiratory Meds:

- **Albuterol** – opens airway
- **Ipratropium** – dries secretions
- **Steroid** – reduces inflammation

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Classification: Internal Use

- **Increase fluid intake** → helps thin secretions
- **Never swallow dry powder capsules** (e.g. Tiotropium) – use with special inhaler device
- Monitor for side effects: **tachycardia, tremors, infection signs**

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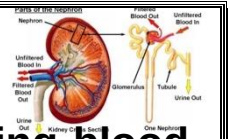
5-RENAL SYSTEM

Classification: Internal Use



➢ Kidney:

- The **kidney** is an essential organ responsible for **filtering blood**, **producing urine**, **balancing fluids and electrolytes**, and **regulating blood pressure**.
- Each kidney contains approximately **one million nephrons**, which are the functional **filtering units.**
- Each **nephron** is composed of two main structures:
    - The **glomerulus**, a network of tiny capillaries. **The glomerulus** acts as the primary **filter**, removing waste products and excess fluids from the blood.
    - The **tubule**, which modifies the filtered fluid, which are then processed into urine.

- **kidney help regulate** mineral levels of calcium and phosphorus in your blood.

⇨ Glomeruli Filtration rate (GFR):

- Over **90ML Per minute** that's normal it basically means that the Kidneys are doing its job.

◊ What other things that the kidney wash out?

- **H→ Hydrogen ions:**
- The Kidneys wash out **excess hydrogen ions**. So, Clients with broken kidneys go into **acidosis**, especially **metabolic acidosis** and this is from all the hydrogen ions being increased in the blood.
- **Blood Urea Nitrogen (BUN):**
    - Urea is a waste product formed from the **breakdown of proteins.**
    - The kidneys filter it out **through urine**.

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- When the kidneys are not working properly, BUN levels increase in the blood, indicating poor kidney function.

- **C → Creatinine** is a waste product from **normal muscle metabolism**.
  - It's filtered by the kidneys and **excreted in urine.**
  - High levels of creatinine in the blood are a key sign of kidney dysfunction.

➢ Renal Failure:

- Kidney failure there are **acute** (Short term Condition » and **Chronic** « long -term- Condition ».
  - **When kidneys fail** or aren't functioning as well, they can't maintain proper levels of minerals. This can weaken your bones and lead to fracture and **bone disease like:**
  - Renal osteodystrophy (a type of bone disorder due to kidney problems). Patients are often prescribed **calcium supplements** and active forms of **vitamin D to protect bone.**

◊ 1-Acute renal failure:

- Acute Renal Failure (ARF), now called **Acute Kidney Injury (AKI),** is a sudden loss of **kidney function over hours to days**, leading to fluid, electrolyte, and waste buildup in the body.
- It may be caused by dehydration, severe infection, or medication toxicity.

◊ 2-Chronic renal failure:

- This From Years and years of destruction resulting in **Permanent damage.**

⇨ Example:

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- Client **uncontrolled diabetes** with years of uncontrolled thick sugary blood inside the Kidneys will end up destroying the Kidneys.

⇨ Diagnostics of renal failure:

- **Creatinine** over 1.3 and High **blood urea nitrogen** (BUN) test
- **Oliguria** is urine output less than 30 ml per hour.
- **Metabolic acidosis.**

⇨ in result of all those:

- Client gets **Uremic pruritus or** also called **chronic kidney disease-associated pruritus** (CKDAP) which is **itching** experienced by people with **chronic kidney disease (CKD)** and **end-stage kidney disease (ESKD).**
- Also, **fluids** can't get from the body into Potty.
- Also, **Sodium, Phosphorus, and Potassium** will build up in the blood.
- **Potassium** is Priority because it pumps heart muscles so high potassium leads to high pumps in the heart and leading to **(Peak T waves and ST elevation)** this Can lead to Critical levels of Potassium Leading (V Tach and V Fib) These the deadliest rhythms.

⇨ For **High Potassium**:

- 1. IV Calcium Gluconate:
- **Purpose**: Stabilizes the **myocardial cell membrane**.
- **Use**: Given to prevent or treat **life-threatening dysrhythmias**.
- **Note**: Does **not lower potassium**, only protects the heart temporarily.
- 2. IV 50% Dextrose + Regular Insulin:
- **Insulin** drives **potassium into the cells**.

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Classification: Internal Use

- **Dextrose** prevents Hypoglycemia from insulin administration.
- **Effect**: Temporarily reduces serum potassium.
- 3. Sodium Polystyrene Sulfonate (Kayexalate):
- **Mechanism**: Binds potassium in the gut and removes it through the stool.
- **Effect**: **Lowers potassium levels over hours**.
- **Route**: Oral or rectal.

◊ Example:

○ Client with chronic kidney disease missed three dialysis Sessions so potassium will be increasing 8.1 and has **QRs Complexes wide ECG dysrhythmia** with heart rate 58 even lethargy Which order Should The nurse **implement FIRST?**

○ IV Calcium gluconate.

◊ Example:

○ Client has end stage renal disease, with k: 7.2 and Bun 35, creatinine 3.8 and urine output 300 in 24hrs **what is the priority now?**

- First, it doesn't say anything about cardiac dysrhythmic. So**, No IV Calcium gluconates.**
- Second so, we Wil give **regular insulin and Dextrose 50%.** This is the Priority because we want to bring down drop Potassium and push the potassium into the Cell.

⇨ What other interventions do you want to implant for Client in renal failure:

- 1. Monitor and Assess:

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Classification: Internal Use

- **Daily weights** to monitor fluid status.
- **Strict input/output recording** to assess kidney function and fluid balance.
- **Monitor serum creatinine, BUN, potassium, sodium, phosphorus**, and calcium regularly.
- **Assess for signs of fluid overload** (e.g., edema, crackles, hypertension).
- **Monitor blood pressure** closely (common HTN).
- **Assess creatinine before giving contrast dyes** for CT scans (to prevent contrast-induced nephropathy).
- 2. Medication Considerations:
- **Avoid nephrotoxic drugs**:
  - NSAIDs (e.g., ibuprofen, naproxen)
  - Certain antibiotics (e.g., vancomycin, gentamicin, amphotericin B).
  - IV contrast (unless necessary—then use precautions)
- 3. Diet and Nutrition:
- **Low sodium, low potassium, low phosphorus, and low protein diet**.
- **Avoid**:
  - Salt substitutes (contain potassium chloride)
  - Packaged foods, processed meats (high sodium/phosphorus)
  - High-potassium foods: green leafy veggies, spinach, avocados, melons, bananas, potatoes, tomatoes, oranges.
  - **Limit protein intake**, unless on dialysis (may need moderate protein).
  - **Apple and apple juice** are safe (low in potassium).

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Classification: Internal Use

- Adequate **fluid restriction** based on urine output and fluid status.

⇨ Nursing instruction:

- **Sodium Restrictions** as Pickled Food, Canned Soups, Sauce.
- **Fluid intake** monitoring be Careful include foods that are liquid (popsicles, Gelatine).
- **Low Protein diet** help prevent Progression of **kidney disease** but if the Client is already **on dialysis** will recommend increase Protein.
- **Low Phosphor** as chicken, dairy Products.

◊ CKD risk for:

- **Fluid** overload.
- **Hyper**kalaemia.
- **Hyper**phosphatemia and **hypo**calcaemia.

⇨ Manifestation of Worsening CKD:

- **The persistent metallic taste** in the mouth is due to Convert **Urea to ammonia.** can indicate serious illnesses, such as **kidney or liver problems.**
- Difficulty with memory and Concentration due to **accumulation of west Product.**
- **Fluid Overload** (bilateral crackles) In Lung, distended neck, and edema.
- **Loss of appetite anorexia**, nausea, and Vomiting

⇨ Expected labs:

- Increase Bun, Potassium, and Phosphor.
- Decrease, Calcium, Glomerular Filtration rate.

⇨ Lifestyle management for clients with CKD:

- **Chewing gum** and sucking on Sugar Free.

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Classification: Internal Use

- Receiving routine injection (**erythropoietin stimulating agent**)to raise number **of RBCs to treat anemia.**

➢ Renal Replacement Therapy:

◊ 1-Peritoneal dialysis:

- **A treatment for kidney failure** that uses the **lining of your abdomen**, or belly, to **filter blood** inside body.
- A catheter is placed into the **peritoneal Cavity** to infuse Dialysis Fluid.

◊ How It Works:

- A **dialysate solution** is instilled into the **peritoneal cavity** via a **permanent catheter**.
- Waste products and excess fluid move from the blood into the dialysate.
- After a dwell time, the solution is drained and replaced with fresh dialysate.

◊ Advantages:

- **Done at home**, promotes independence.
- **Fewer dietary restrictions** than haemodialysis.

◊ Disadvantages/Risks:

- **Peritonitis** (infection of the peritoneum)—major risk.
- Requires strict **aseptic technique**.
- May cause **weight gain**, hernias, or back pain.
- Not suitable for patients with abdominal adhesions or hernias.

⇨ **There are three Phases of Peritoneal dialysis.**

1. Fill phase:

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1. Where dialysis is **infused into the perianal cavity** through two letters of warm Fluid **instill over 10 minutes it sh**ould put the dialysis **bag above**.

2. Dwell Phase:

- Dialysate remain in **the Perennial cavity for 4-6 hours.**

2. Drain Phase:

3. Should the Dialyses drainage bag below.

4. Client Change the Position From side to side and Message the abdomen 15-30min.

⇨ What is The Complication may occur during Instillation:

- **Respiratory distress,** Difficult breathing, rapid respiration, crackles that can result **from instillation the dialysis too rapidly** (over filling) at the abdomen or **Fluid entering thoracic Cavity.**

⇨ Sign that concerns and indicates Peritonitis:

- Cloudy Out Flow, Tachycardia, low grade fever
- **Bloody Fluid** indicate intestinal Perforation.

⇨ Complication of Peritoneal dialysis:

- Catheter site infection
- Peritonitis abdominal Pain, Rebound tenderness.
- In sufficient out flow (Less Fluid in drainage bag than Instilled).

⇨ Appropriate actions when self-administering, peritoneal Dialysis:

- **Placing** the drainage bag below the abdomen during the drainage Phase.
- Put the Client in Semi Fowler Position.
- Notify the HCP if dialysis at outflow is Cloudy risk for **infection.**
- Change Position to facilitate drainage if the output Volume is less than the input.

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- Sterile Technique Priority to prevent infection.

⇨ What are the nursing interventions in case of insufficient Out Flow in peritoneal dialysis?

- **These results often from Constipation** the nurse should assess the Clients Bowel Patterns and administer appropriate prescribed medication stool softener.
- **Check the tube for** Kinks and reposition client to side lying position.
- If these measures are ineffective should **Do X-ray**.

⇨ Peritoneal dialysis may be the better choice if you:

- **Have trouble coping with side effects** that may happen during haemodialysis. These include muscle cramps or a sudden drop in blood pressure.
- Want a treatment that's less likely to get in the way of your daily routine.
- Want to work or travel more easily.
- Have some leftover kidney function

➢ **2-Haemodialysis:**

- A dialysis method where blood is filtered outside the body using a **dialyzer (artificial kidney)**.

⇨ Prior dialysis nurse Should:

- **Check the client medical record** to determine the last Post dialysis weight.
- Obtain client vital signs.
- Palpate (feel) the **fistula** In Client's arm (a thrill) and auscultate for **Burst**.

⇨ After the client is connected the dialysis:

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- IV heparin.

⇨ Complication of haemodialysis:

- **Air embolism** is a life threatening that occurs when **air enters** the blood stream through the dialysis Catheter which cause, dyspnea, Chest Pain, sever anxiety, Hypertension, Reduce Oxygen Saturation.

⇨ Nursing Intervention:

- Immediately Clamp the access tube
- Provide O2 to relive Dyspnea.

⇨ Instruction:

- Hold mediation as **anti-hypertensive** because dialysis washes out the blood, it will wash all the medication and wash antibiotics, VITAMINE.
- Always Check **Fluid Status**, weigh the Client Check the Pervious Weigh to their Current weight.
- **An arteriovenous (AV) fistula** is a surgically created connection between an artery and a vein, used for long-term dialysis access."

⇨ Critical assessment For **Fistulas:**

- **Feel (a thrill) and hear (a bruit)** that's mean the Fistula is working.
- Teach him to **feel a thrill** on that Fistula**, Feel Vibration** times a day to make sure that Fistula is not Clotting If he doesn't feel a thrill this is a huge problem and must be reported.

⇨ Education for Client Fistula in his arm:

- Squeeze or grip a rubber ball or even sponge.
- Tell him Pitting edema is completely normal.
- No restrictive clothing or even Jewelry.
- No BP, No IV No sleeping on the effected arm.
- No lifting anything over five Pounds.

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Classification: Internal Use

⇨ What is not normal and should be reported?

- Pale Color arm and even pallor, or dusky skin signs.
- **Paresthesia** that numbness and tingling in the fingertips and arms.

➢ Post streptococcal glomerulonephritis (PSGN):

- An **immune-mediated kidney disorder** that occurs **1–3 weeks after** a **Group A Streptococcus (GABHS)** infection such as:
  - **1–2 weeks after** a **strep throat** infection.
  - **3–6 weeks after** a **skin infection** like **impetigo.**
- The immune response causes **inflammation of the glomeruli**, leading to **reduced kidney function**.

⇨ Causes & Risk Factors:

- **Recent strep throat** or skin infection (impetigo)
- More common in children (ages 5-12)

⇨ Signs & Symptoms:

- **Periorbital edema** (swelling around the eyes).
- **Tea- or cola-colored urine** (due to hematuria)
- **Oliguria** (↓ urine output)
- **Hypertension** (due to fluid retention)
- **Azotemia** (↑ BUN and creatinine)
- Recent history of **strep infection**

⇨ Treatment & Nursing Care:

- Monitoring:
- Vital signs, especially **BP**
- **Daily weights**
- **Intake & Output**

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Classification: Internal Use

- Monitor for signs of **fluid overload** (crackles, SOB, shortness of breathing)
- Medications:
- **Antibiotics** (e.g., **penicillin**, if infection is still present)
- **Diuretics** (e.g., **furosemide**) for edema.
- **Antihypertensives** for high BP
- Diet:
- **Low sodium** to reduce fluid retention
- **Fluid restriction** if needed
- **Possible protein restriction** if BUN/creatinine are high
- Avoid Nephrotoxic Substances:
- **NSAIDs**
- **Aminoglycosides (gentamicin).**
- **IV contrast.**

◊ Complications to Watch For:

- Acute kidney injury (AKI)
- Pulmonary edema
- Hypertensive crisis
- **Seizures** (from hypertensive encephalopathy)

➢ **Acute nephrolithiasis (Kidney Stones):**

- **Nephrolithiasis** refers to the **presence of renal calculi** (kidney stones), which are hard mineral and salt deposits that form in the kidneys.
- These stones **can obstruct the ureter**, leading to complications such as **hematuria** (blood in urine).

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Classification: Internal Use

- The **ureters** are smooth muscle tubes that transport **urine from** the kidneys to the **urinary bladder.**

⇨ Sign and symptoms:

- **Severe flank pain** that may radiate to the **groin** or **lower abdomen**.
- **Tachycardia** (due to pain or dehydration).
- **Nausea and vomiting** (from pain or associated gastrointestinal irritation).
- **Hematuria** (visible or microscopic).
- Restlessness or inability to find a comfortable position.
- **Possible dysuria or urinary urgency** if the stone is near the bladder.

⇨ Appropriate intervention when caring client nephrolithiasis (renal calculi)

- **1-Pain and Symptom Management:**
  - **Administer prescribed pain medications** (e.g., NSAIDs or opioids) to relieve severe flank or abdominal pain.
  - **Administer antiemetic medications**, such as **ondansetron**, to manage nausea and vomiting.
- **2. Monitoring and Assessment**
  - **Monitor urine output** and observe for **spontaneous passage of stones**.
  - **Note:** Most stones **<5 mm** in diameter **passes spontaneously** through the urinary tract.
  - **Monitor for signs of obstruction**, infection, or worsening pain.
- **3. Promoting Mobility and Circulation**
  - **Encourage ambulation and physical activity** (if tolerated) to Promote stone movement and passage and Enhance circulation.
  - Prevent complications such as **deep vein thrombosis (DVT)**.

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Classification: Internal Use

- **5. Surgical or Procedural Intervention**
  - 1-Extracorporeal Shock Wave Lithotripsy (ESWL):
  - A **non-invasive** procedure that uses **shock waves** to break up kidney or ureteral stones.
  - Typically used for **stones ≥10 mm** that cannot pass spontaneously.
  - Fragments pass naturally through urine.
  - Requires **light sedation or anesthesia**, so the client must be **NPO** prior.
  - 2-Percutaneous Nephrolithotripsy (PCNL):
  - A **minimally invasive surgical** procedure to remove **large or complex stones** directly from the kidney through a small incision in the back.
  - **Used when ESWL** is ineffective or inappropriate.
  - Requires **general or spinal anesthesia**, so the client must be **NPO** before the procedure.

6. Post-Passage Care

- If the **stone passes spontaneously**:
- **Collect the stone** for laboratory analysis to determine its **composition** and **underlying cause**.
- Use the results to **educate the client** on preventive strategies and necessary **lifestyle or dietary changes.**

⇨ After ESWAL Procedure the Client should instruct:

- **Ambulation** after Procedure.
- Increase Fluid intake.
- **Expect some** bruising and Path of the back or flank.
- Expect to see blood in urine and should progress From Bright to Pink.

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- Report any symptoms of Infection.
- 24 hours after Procedure, the normal finding is seeing bruising, Pain and blood in the urine.
- Report Fever and Chills.

⇨ Risk Factor for development:

- **Gout,** which increases the amount of uric acid in the kidney.
- Fragment UTI.
- Dehydration.
- Hyperparathyroidism and hypercalcemia.
- Family history.

➢ Percutaneous Nephrolithotripsy (PCNL):

- If the stone is **too big for (ESWL),** the second procedure is **Percutaneous Nephrolithotripsy (PCNL)** is a **surgical procedure** to remove kidney stones that are too large to pass on their own or don't respond to other treatments.
- A **minimally invasive surgical procedure**.
- A small cut is made in the **back** to directly remove the stone.
- Used for **large stones** (more than 2 mm) or complex/staghorn stones.
- Done under **general or spinal anaesthesia**.
- Usually needs a **hospital stay** of 1–2 days.
- More effective than ESWL for big or hard stones.

⇨ After Procedure for Percutaneous Nephrolithotripsy:

- A **temporary tube and a bag** are going be placed for any loose Stone Fragments to simply Pass Through. So, we see Stones at the bottom of this bag.

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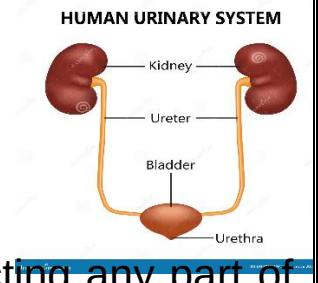
- We don't want any clogging so always **irrigate the nephrostomy tube with sterile normal saline.**
- Teach clients to report any back Pain to Provider.
- **Give Pain Medication,** Increase Fluid intake strains the urine For Stones.
- **Encourage Client to move**, around, ambulate so, no bedrest never do massage the Clients Kidney.

⇨ Diet education for Renal Calculi:

- **Drink plenty of fluids** (at least 2–3 liters/day.
- **Increase intake of citrus fruits** (e.g., lemons, oranges): → Contain **citrate**, which helps prevent stone formation.
- **Eat a balanced diet rich in fruits and vegetables**.



➢ **Urinary tract infection (UTI):**

- **A Urinary Tract Infection (UTI)** is an infection affecting any part of the **urinary system.**
- Start in the **urethra** and then go into the **Bladder**. In the bladder it's Called **Cystitis** then it can crawl up the tubes to the Kidneys Causing **Pyelonephritis** the Kidney infection

⇨ Most Common Cause:

- The primary bacteria responsible is **Escherichia coli (E. coli)** a type of bacteria normally found in the **intestines.**

⇨ Path of Infection:

- **Bacteria usually** enter through the **urethra**.
- They travel up to the **bladder** → causing **cystitis** (bladder infection).
- If untreated, the infection can **ascend** to the **kidneys** → causing **pyelonephritis** (kidney infection), which is more serious.

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⇨ Which More Serious?

- **Pyelonephritis** is more severe.

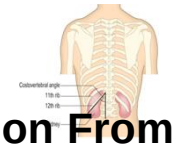
⇨ What are the Sign and Symptoms for UTI?

- Fever, irritability, Pain.
- Painful, burning Urination.
- Foul Smelly or cloudy urine.
- Urinary Frequency.

⇨ Diagnostic:

- **Nitrites** in the urine only occur when you have a **urinary tract infection** (UTI) indicates kidney infection.

➢ **2-Acute pyelonephritis:**



- **Infection of kidney** usually Caused by extension of **infection From the Lower urinary tract bladder.**

⇨ Location of Pain:

- **Costovertebral angle** (CVA) tenderness:
    - this is the **most classic and specific sign** Located between the lower ribs and the spine (where the kidneys sit).
- **Dull flank pain:** Along the side of the body, sometimes radiating toward the umbilicus (belly button).

⇨ Sign of acute Pyelonephritis:

- Fever, vomiting, costovertebral tenderness.
- Acute flank pain extending toward the umbilicus.
- **Clients at risk for Sepsis** include those with suspected infection as acute Pyelonephritis **in case client old age and diabetic so sepsis can occur quickly.**

⇨ Sign of sepsis:

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- Fever, Tachycardia and Tachypnea.
- If sepsis is suspected the nurse should anticipate ob**taining Blood and urine samples for culture** before administering antibiotics to identify The Causative organism to prevent contamination of Culture with Antibiotics.

⇨ **Education**:

- Teach him to increase Fluid intake and prevent any more infection.
- Void after sex and even take **Cranberry juice** or Cranberry supplements.
- Always avoid Caffeine and alcohol
- No synthetic fabrics like nylon.
- **Always wipes from front to back.**

➢ **Stress urinary incontinence:**

- The **involuntary leakage of urine** during physical activity or movements that **increase intra-abdominal pressure** (e.g., coughing, sneezing, laughing, or lifting).
- Caused by **weak pelvic floor muscles** or **urethral sphincter weakness**.
- Often occurs in women related to:
- **Loss of pelvic muscle** tone as history of vaginal delivery and **multiple Pregnancy.**

⇨ Intervention for Client with **urinary incontinence:**

◊ **Lifestyle Modifications:**

- **Lose excess weight** – reduces abdominal pressure on the bladder.
- **Avoid bladder irritants**:

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- Caffeine
- Alcohol
- Citrus juices
- Spicy foods
- **Consume a high-fiber diet** – prevents constipation, which can worsen incontinence.

◊ **Pelvic Floor & Bladder Training:**

- **Kegel exercises**: Strengthen the pelvic floor muscles.
- **Bladder training**:
- Encourage **voiding every 2 hours** while awake (timed voiding).
- **Double voiding technique**: Instruct the client to **wait 20–30 seconds after urination**, then **try to void again** to empty the bladder more fully.

◊ **Medications (for Overactive Bladder / Urge Incontinence):**

- **Anticholinergics** like:
  - **Oxybutynin**
  - **Tolterodine.**
- **Antibiotics** are **not expected** unless there is an underlying urinary tract infection.

◊ **Other Nursing Actions:**

- **Assess perineal skin** for breakdown or irritation from urine exposure.
- **Measure post-void residual (PVR) volume** to ensure proper bladder emptying.
- Instruct client in the **Valsalva maneuver** (bearing down) **only when appropriate** to assist in emptying the bladder – not suitable

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for everyone and must be used cautiously (e.g., avoid in cardiac patients).

⇨ Pessary:

- a vaginal device that provides support for the bladder.
- **Surgery** is not required For Pessary placement clients can ably insert and remove the Pessary themselves.
- If a Pessary or other treatment as, Pelvic muscle exercise, oestrogen replacement therapy is ineffective, reconstructive Surgery may be included.
- Increase Vaginal discharge is Common Side effect.
- Client can **remain sexually active While Wearing a Pessary**.

➢ **Benign prostatic hyperplasia:**

- **BPH is the non-cancerous enlargement** of the prostate gland, which is located just below the bladder and surrounds the urethra. As the prostate enlarges, it **can press on the urethra,** leading to symptoms related to urinary obstruction.
- Abnormal Prostate Enlargement that most commonly affect male Client age above 50.

⇨ Symptoms:

- Urinary Urgency, Frequency, and hesitancy.
- Dribbling urine after Voiding.
- Night-time Frequency.

⇨ This patient has risk for:

- Develop **Urinary tract Infection.**

⇨ Sign and Symptoms:

- **Burning sensation** with urination.

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- Cloudy and Foul smell
- UTI Symptoms require further assessment.

⇨ **Treatment:**

- 1-Administering Tamsulosin:
    - Help to reduce the symptoms of an enlarged prostate gland by **relaxing the muscle** around the bladder and prostate gland so you can pee more easily.
    - The adverse effect OF **Tamsulosin**:
    - Erectile dysfunction.
    - orthostatic hypotension.

⇨ 2-A TURP (Transurethral Resection of the Prostate) or Prostatectomy

- surgery to remove **parts of the enlarged prostate** to treat benign prostatic hyperplasia.
- Small blood clots may occur for up to 36 after surgery. Consistent **Passage of Clots** after long time could indicate Post-operative Complication and should Visit clinic.
    - Sign of complication:
    - Reduced urine Stream
    - Persistent bleeding, Blood clots, urine retention, fever, dysuria If show all those symptoms must be evaluated again for further treatment.

⇨ After procedure:

- May insert a **urinary catheter** in place because of swelling that blocks urine flow. Most often, the catheter is left in place for at **least 24 to 48** hours.
- **Continuity bladder irrigation** is common to prevent obstruction. •

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- **Total urine Output** should be more than continuous bladder irrigation. **In Case of the input more than output** may indicate obstruction that can lead to rupture of bladder if not Corrected (assess Kinks, Flush to Dislodge Clots and Notify Surgeon.

➢ **Bladder Cancer:**

- **Bladder cancer** occurs when malignant cells form in the tissues of the bladder.
- **Routine screening** for bladder Cancer is essential to promote early diagnosis.

⇨ Risk Factors:

- **Smoking:** Leading risk factors for bladder cancer.
- **Chemical exposure:** Exposure to industrial chemicals.
- **Age:** More common in individuals older than 55.
- Gender: Men are more likely to develop bladder cancer.
- Chronic bladder conditions: Such as infections or stones.
- Family history: Increases risk.

⇨ Clinical Manifestations:

- **Hematuria** (Blood in the urine): Often the first sign.
- Painful urination: Dysuria.
- Frequent urination or urgency: Even when the bladder is not full.
- Pelvic pain: May be felt in the lower abdomen or back in later stages.
- Urinary retention: In advanced cases, the bladder may not be fully empty.

⇨ Treatment Surgical management:

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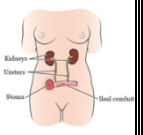
- **TURBT** (Transurethral resection of bladder tumor): Common for early-stage tumors (Partial or complete Cystectomy)
- **Cystectomy:** Removal of the bladder for advanced cancer.
- Partial cystectomy: Removal of part of the bladder.

⇨ Nursing Care Considerations:

- **Postoperative care (e.g., after cystectomy or TURBT):**
  - Monitoring for bleeding, infection, and wound healing.
  - Managing pain and providing emotional support.
  - Teaching the patient how to **manage a urinary diversion** (e.g., ileal conduit or continent urinary reservoir).



➢ **Urostomy (ileal conduit)**:

- **a way of collecting** urine through a bag outside your body. It is also called an **ileal conduit**.
- This operation is usually part of the surgery to remove your **bladder (cystectomy).**
- A healthy stoma should **be pink and moist.** If Stoma is **dusk or any shade** of blue, the **nurse suspects impaired perforation** and contact HCP

⇨ Indications for Urostomy:

- Bladder cancer (most common)
- Neurogenic bladder (spinal cord injury, multiple sclerosis, etc.)
- Chronic bladder inflammation or interstitial cystitis
- Severe trauma or congenital bladder defects.

⇨ Postoperative Nursing Care:

- **Assess the Stoma:**
- Normal: Red, moist, and protruding slightly

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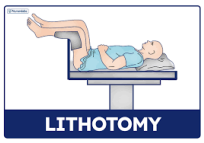
- Abnormal: Pale, dusky, or black (indicates ischemia—REPORT IMMEDIATELY!)
- **Monitor Urinary Output:**
- Urine should be continuous (notify provider if no output in 1-2 hours)
- **Monitor for Complications:**
- Infection (UTI, pyelonephritis) → Fever, foul-smelling urine
- Urine leakage around the stoma → Can cause skin irritation
- Obstruction (hydronephrosis risk) → Decreased urine output, flank pain



➢ **Cystoscopy:**

- Cystoscopy is a **medical procedure that allows direct vi**sualization of the bladder and urethra using a cystoscope, a thin, flexible or rigid tube with a camera and light.
- It is commonly performed to **diagnose and treat conditions** affecting the urinary tract.

⇨ Indications for Cystoscopy:

- Recurrent urinary tract infections (UTIs)
- Hematuria (blood in urine)
- Bladder stones or tumors
- Urinary incontinence or retention

⇨ Pre-Procedure Care:

- Obtain informed consent.
- **Educate the patient** about mild discomfort and urinary urgency during the procedure.
- Ensure NPO status if sedation is required.
- Assess for allergies (e.g., iodine, latex, anesthesia).

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⇨ During the Procedure:

- Performed under local, or general anesthesia.
- Patient is in a **lithotomy position**.
- A sterile technique is used to prevent infections.

⇨ Post-Procedure Care:

- **Encourage increased** fluid intake to flush out the bladder.
- **Monitor for dysuria** (painful urination), hematuria (mild blood in urine is normal initially), and urinary retention.
- **Watch for signs of infection**, including fever and chills.
- Educate the patient to report persistent bleeding, severe pain, or inability to urinate.

⇨ Potential Complications:

- Urinary tract infection (UTI)
- Bladder perforation (rare but serious).

➢ **Macular degeneration**:

- **Macular degeneration** is a **progressive eye condition** that affects the **macula**, the small central part of the **retina** responsible for **sharp, central vision** (used for reading, driving, and recognizing faces). It causes **blurred or distorted vision** and may lead to **central vision loss**, especially in older adults.

◊ Types:

- **Dry (Atrophic) Macular Degeneration** – Most common; gradual thinning and breakdown of macular tissue.
- **Wet (Neovascular) Macular Degeneration** – Less common but more severe; involves abnormal blood vessel growth under the retina, leading to bleeding and rapid vision loss.

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◊ Pathophysiology:

- **Deterioration** of the **macula** leads to **blurred, distorted, or lost central vision**.
- Peripheral (side) vision usually remains intact.

◊ Signs & Symptoms:

- **Blurred or wavy vision**
- **Dark, blurry spot (central scotoma)** in the center of vision
- **Difficulty reading or recognizing faces**
- **Loss of central visual field**
- May describe seeing a **black or gray spot in the middle of the page** when reading

◊ Client Education & Lifestyle Modifications:

- **Smoking cessation** (smoking increases progression risk)
- **Increase intake of leafy dark green vegetables** (rich in lutein and zeaxanthin — antioxidants beneficial for eye health)
- Consider **vitamin supplements** (AREDS formula) if recommended
- Wear **protective sunglasses.**
- Use **bright lighting** and **magnifying devices** to aid in daily activities
- **Regular eye exams** to monitor progression

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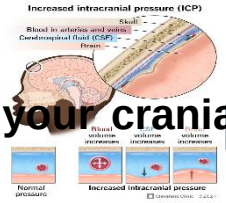
6- Neurological disorders.

➢ Intracranial pressure (ICP):

- **Intracranial Pressure (ICP)** is the **pressure inside the skull** caused by brain tissue, cerebrospinal fluid (CSF), and blood.



⇨ Elevated Intracranial pressure (ICP):

- Happens when there's a **rise in the pressure within your cranial vault.**

⇨ Cranial vault:

  - The cranial vault is the closed space inside the skull that contains three main components:

- **Brain.**
- **Cerebrospinal fluid (CSF) (**This is the fluid that cushions and protects your brain and spinal cord).
- **Blood:**
  - Supplies oxygen and nutrients to brain tissue**.**
  - Any change in blood volume (e.g., bleeding or vasodilation) can increase intracranial pressure (ICP).

◊ NOTE:

- Any increase in the volume of one of these three components will **increase** the **overall pressure** within your cranial vault.
- **Increased intracranial pressure** typically leads to a **decrease in blood flow in your brain**.

⇨ Causes for increase in ICP:

- **Brain bleeding**, Head trauma, meningitis, and Brain tumor.

◊ Progression of Signs and Symptoms of Increased Intracranial Pressure (ICP):

  - Early, Moderate, and Late Stages:

⇨ Eerily signs of any brain injury or even hypoxia:

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- **Mental status changes** or altered level of consciousness « irritability, agitation).

⇨ Moderate signs:

- Sudden Vomiting **Without nausea** and we must report that to HCP «Vomiting=Emesis »

⇨ Late Sever signs:

- First, Cushing's triad: Which means **Low heart rate** and **Low respiratory rate** with **wide Pulse pressure** or basically **wide blood pressure** refers to a **large difference** between **systolic** and **diastolic** blood pressure measurements It can increase the risk of heart conditions and may indicate worsening heart.

⇨ Second, With eyes:

- Normal Pupils:
  - Size: **2 to 6 mm** in diameter
  - Should be **equal**, **round**, and **reactive to light** (PERRLA)
- Abnormal Pupillary Findings:
- **Fixed and dilated pupils**.
  - Suggests **increased intracranial pressure** or **brain herniation.**
  - **Neurological emergency**
- Doll's Eye Reflex (Oculocephalic Reflex) – Brainstem Function Test:
  - **Positive (Normal) Response:**
  - When the head is turned to one side, the eyes move **in the opposite direction**
- Example:
  - Turn head to the **right** → eyes move to the **left**
  - This means the **brainstem is intact**
- Absent Doll's Eye Reflex:

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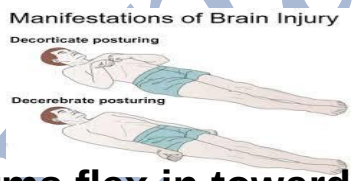
- The eyes stay fixed and **do not move** when the head is turned
- Indicates **brainstem dysfunction**
- Seen in **severe brain damage or brain death**

⇨ Third, Babinski Reflex:

- Extension of the **big toe**, **abduction the other toes**, also called the fan-out. It's very bad for adults to have the **Babinski reflex.**
- It's normal for **infants**.



⇨ Fourth, Posturing:

- **Decorticated,** abnormal Posturing is where the **arms flex in toward the core.**
- **Decerebrate** the arms **go outward.**

⇨ **Diagnostic:**

- CT brain.

⇨ Client is Found on the Floor appear lethargic and bleeding in the back head **HR=45** « Very low » **BP = 220/80** High what is the immediate action?

- **C Spin immobilization** and go **to CT scan.**

⇨ Interventions for increasing ICP:

- Keep the head and neck in a **neutral position** and always **log roll the Client as one unit.**
- **Keep Co_2** level low and do **hyperventilate to decreaseCo_2**.
- Semi flower's position **is 30 to 45 degrees.**
- **No bending the extremities**, **avoid pressure**, Coughing, sneezing, Valsalva maneuver it will increase ICP.
- Give Stool Softeners.
- **Do not do** lumber Punctures.
- **Can do ICP monitor** (Normal ICP 5 to15) .

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⇨ Pharmacology for ICP:

- **Steroids** ending Zone to decree Swelling.
- **Phenytoin** prevents seizures.
- **Mannitol,** the osmotic diuretic number one drug that's **decrease the osmotic pressure inside the brain.**

➢ **Seizures:**

- **A seizure is a sudden**, abnormal electrical discharge in the brain that leads to changes in behavior, movements, or feelings, or a loss of consciousness.

⇨ Causes of Seizures:

- **Epilepsy** (chronic condition with recurrent seizures).
- Head injury/trauma.
- Stroke or brain tumor.
- Hypoxia.
- Infection (e.g., meningitis, encephalitis).
- Fever (febrile seizures in children).
- Electrolyte imbalances (low sodium, calcium).
- Withdrawal (from alcohol, drugs).

⇨ Most risk:

- Infection like **meningitis**.
- **Trauma** like Traumatic brain injury and concussion.
- Brain Mass and brain tumor.
- Increase ICP.
- Fever in infant febrile seizure.
- Client Withdrawing from drugs and alcohol.

⇨ Triggers of Seizures:

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- Stress
- **Sleep deprivation**.
- Strobe lights or flashing lights.
- Low sugar below 70, Low Sodium blow 135.

⇨ **Stages of seizure.**

⇨ Prodromal Phase:

- This is the **Warning sign** before a seizure**.** They also may have changes in behavior. This can happen in the hours or even days before a seizure.

⇨ Aura Phase:

- Immediately before a seizure.
- A visual, auditory, or even a smelling sensation.

⇨ ictal Phase:

- **Actual seizure** Phase itself, it's the active seizure.

⇨ Post ictal Phase:

- The Post Part Phase will appear **Confused, and disoriented.**

◊ Most deadly Complication:

- **Status Epilepticus** A continuous seizure lasting >5 minutes, OR Two or more seizures back-to-back **without regaining full consciousness** in between.
- This is a **life-threatening emergency** requiring **immediate intervention** to prevent brain damage, hypoxia, or death.

⇨ Diagnostic:

- **EEG**, Electro Cephalogram is used to assess critical activity inside the brain.

⇨ Before EEG:

- No Caffeine Tea, Coffee Soda.

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- No seizure Medication before EEG.
- No need for client to Stay NPO.

⇨ Nursing intervention for active seizures:

- **Assist the Client** to sit on the ground and **turn him to the side to** open the airway.
- **Clear anything** around the Client.
- **Never insert anything** into the mouth, never hold or restrain.
- **Remove restrictive** Clothing especially neck or chest.
- Call For help, Stay with the Client.
- Prepare suction.
- **After a seizure** we always **record the time** assessing level of consciousness.

⇨ Treatment Protocol:

- 1. Immediate Action – IV Benzodiazepines:
  - **Lorazepam (Ativan)** – first-line drug
  - Preferred due to longer duration of action
  - **Diazepam (Valium)** – alternative if lorazepam unavailable
- 2. Follow-Up: Long-Acting Antiepileptic Drugs (AEDs):
  - Examples:
  - **Phenytoin (Dilantin)**
  - **Levetiracetam (Keppra)**
- 3. Airway Management:
  - **Monitor respiratory status closely**
  - **Intubation** may be necessary if:
  - Seizures persist
  - Respiratory depression occurs from meds or seizure activity

⇨ NCLEX Nursing Priorities:

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- Ensure safety: pad bed rails, loosen clothing, side-lying position
- Establish IV access immediately
- Administer medications promptly
- Monitor oxygen saturation and administer oxygen
- Prepare for possible intubation

➢ **Stroke:**

- **A stroke (also called a brain attack)** occurs when there is a sudden interruption in blood flow to the brain, causing brain cells to be deprived of oxygen and nutrients. This results in permanent brain damage if not treated quickly.

⇨ To Prevent Stroke:

- **Manage** blood pressure.
- Control blood sugar if you have diabetes.
- Improve blood cholesterol levels.
- Quit smoking and Limit alcohol consumption.
- Maintain a healthy weight and exercise regularly.

⇨ Sign and symptoms of stroke:

- **Sudden numbness** or weakness in the face, arm, or leg, especially on one side of the body.
- **Sudden confusion**, trouble speaking, or difficulty understanding speech.
- **Sudden trouble seeing** in one or both eyes.
- **Sudden trouble walking**, dizziness, loss of balance, or lack of coordination.
- **Sudden severe headache** with no known cause

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⇨ If you think someone may be having a stroke, act F.A.S.T. and do the following test:

- F—Face: Ask the person to smile. **Does one side of the face droop**?
- A—Arms: Ask the person to **raise both arms**. Does one arm drift downward?
- S—Speech: **Ask the person to repeat a simple** phrase. Is the speech slurred or strange?
- T—Time: If **you see any of these signs**, call EMERGENCY.

⇨ Treatments:

- **Thrombolytic,** but we must give within 3.5 hours of the onset of the symptoms Clot busters.
- **TPA (**Alteplase, Streptokinase)

⇨ What are the interventions for an initial plan of Car for a Client with a suspected stroke?

- Obtain CT scan on the head.
- Perform neuro assessment.
- Prepare initiate alteplase with 3.5 for diagnosed and **confirmed blood clot.**

⇨ **Causes of stroke:**

◊ **1-ischemic stroke:**

- An **ischemic stroke** occurs when a **blood clot (thrombus or embolus)** blocks blood flow in a cerebral artery, depriving brain tissue of oxygen.

◊ Causes:

- 1-Thrombus Formation:
  - A **clot forms in a narrowed artery**, usually due to **atherosclerosis**

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- Atherosclerosis = plaque buildup (fat, cholesterol, calcium) on artery walls
- Narrowed arteries reduce blood flow → ↑ risk of clot formation

- 2-Embolism:
  - A clot travels from another part of the body (often the heart) and **lodges in a brain artery**

◊ Hypertension in Ischemic Stroke:

- After an ischemic stroke, **elevated BP is allowed temporarily** to maintain cerebral perfusion.
- This is known as **permissive hypertension**

◊ When to Treat:

- **No immediate treatment** needed unless:
- **Systolic > 220 mmHg**
- **Diastolic > 120 mmHg**
- Goal: Avoid decreasing BP too quickly, which can **worsen ischemia**

◊ NCLEX Tip:

- In acute ischemic stroke, **aggressively lowering BP is avoided**, unless it's **extremely high**, because **adequate cerebral perfusion must be preserved**.

⇨ 2-Transient ischemic attack:

- **A transient ischemic attack (TIA)** is a temporary period of symptoms like those of **a stroke**.
- But a TIA doesn't cause **permanent damage,** a **temporary decrease in blood supply to part of the brain the decrease** may last as little as five minutes.

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- **TIA Symptoms (Same as Stroke).**

⇨ 3-Hemorrhagic stroke:

- **Hemorrhagic stroke** occurs when a **blood vessel in the brain ruptures or leaks**, causing **bleeding (hemorrhage)** into the brain tissue.
- No clots involved → it's bleeding, **not a blockage** like in ischemic stroke.

⇨ Key Causes of Hemorrhagic Stroke:

- Uncontrolled hypertension (most common cause)
- Aneurysm rupture
- **Arteriovenous malformation (AVM)** Most deadly complication Intracranial hemorrhage.
- Trauma or head injury
- Anticoagulant overuse (e.g., warfarin overdose)

⇨ Management of Hemorrhagic Stroke:

- **What We Do NOT Give:**
  - **Clot busters (tPA)** → can worsen bleeding
  - **Antiplatelets** (e.g., Aspirin, Clopidogrel)
  - **Anticoagulants** (e.g., Heparin, Warfarin)
- **What We DO Focus On:**
  - **Strict bed rest** to prevent increased ICP
  - **Seizure precautions**
  - **Control blood pressure** carefully
  - **Administer Vitamin K or fresh frozen plasma (FFP)** if bleeding is due to warfarin

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- **Surgical intervention** may be needed (e.g., to drain hematoma or clip an aneurysm).

⇨ Post-Stroke Patient Education & Nursing Care

- **Mobility & ADL (Activities of Daily Living):**
  - Dress the affected (weaker) side first.
  - This helps with easier movement and promotes independence.
  - Support and assist from the stronger (unaffected) side.
  - Use a gait/transfer belt when moving the client (e.g., from bed to chair) for safety.
- **Communication Tips:**
  - Speak in a normal voice. No need to shout; clients usually are not hearing-impaired.
  - Do NOT complete tasks for the patient.
  - Instead, encourage independence and allow extra time for dressing, feeding, etc.
  - Use short, simple instruction Ask yes/no questions when appropriate.
- **Swallowing & Nutrition (for clients with dysphagia):**
  - NPO (nothing by mouth) until a swallowing screen is performed to reduce risk of aspiration.
  - High Fowler's position during feeding to help prevent aspiration.
  - **Chin-tuck technique**: Instruct the client to flex the neck forward while swallowing (chin to chest) to protect the airway.
  - Use a pureed or soft diet – not a regular diet – to make swallowing easier and safer.

➢ **Head trauma:**

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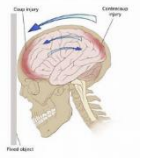
- **Head trauma** can lead to various types of brain injuries, from mild **concussions** to severe traumatic brain injuries (TBI).



◊ Types of Head Injuries:

- **Open Head Injury (Open TBI):**
  - Skull is fractured or penetrated
  - High risk of infection and cerebrospinal fluid (CSF) leakage
  - Often involves basilar skull fractures (base of skull)
  - Clear drainage from the nose, ears, or eyes = CSF leak = medical emergency
  - Test fluid for glucose (positive = CSF)
  - DO NOT insert anything into the nose/ears
  - DO NOT suction or blow the nose
- **Closed Head Injury (Closed TBI)**
  - Skull remains intact
  - Brain injury occurs inside due to movement or blunt trauma
  - **Closed TBI – Coup-Contrecoup Injury:**
  - A coup-contrecoup injury is a type of brain trauma where the brain is injured:
    - **At the site of impact (coup).**
    - **And the opposite side (contrecoup) due to brain rebounding inside the skull**

◊ Common Causes:

- Car accidents (especially with whiplash)
- Falls
- Sports injuries
- Shaken baby syndrome

◊ Common Brain Areas Affected:

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Classification: Internal Use

- **Frontal Lobe:** Often impacted in coup-contrecoup injuries, affecting functions like personality, judgment, and motor control.
- **Temporal Lobe:** Can also be damaged, leading to issues with memory, hearing, and language.
- **Occipital Lobe**: May be affected, leading to visual disturbances.
- **Parietal Lobe**: Can cause sensory issues.

➢ **Meningitis:**

- **Meningitis** is the inflammation of the meninges, the protective membranes covering the brain and spinal cord, typically caused by an infection.
- It can be bacterial, viral, or fungal, with bacterial meningitis being the most serious **any massive Swelling in the brain** leads to deadly **increase in ICP.**
- who protects the brain?
- **The meninges:**
  - The protective layers (Dura Mater, Arachnoid Mater, Pia Mater)
- **The CSF:**
  - The protective fluid that helps support and cushion the brain

⇨ Signs and Symptoms of Bacterial Meningitis with Increased ICP:

- **Headache:**
  - Description: Severe, often described as one of the worst headaches a patient has ever experienced.
- **Photophobia:**
  - (Increased sensitivity or intolerance to light.)
- **Nuchal Rigidity (Stiff Neck):**

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- Description: Pain and difficulty in flexing the neck forward, often due to inflammation of the meninges around the spinal cord.

- **High Temperature (Fever):**
  - Description: A high fever (typically above 38°C or 100.4°F) is one of the classic signs of bacterial infection.
- **High-Pitched Cry:**
  - Description: A high-pitched or "meningeal" cry can be a sign of severe discomfort or pain from meningitis, especially in infants.
- **Bulging Fontanels:**
  - Description: The fontanels (soft spots on an infant's head) may bulge due to increased pressure inside the skull.

⇨ Interventions for Managing a Client with Bacterial Meningitis and Increased ICP:

- Provide a Low-Noise, Quiet Room Away from the Nurse's
- Maintain Low Light
- Minimize Physical Pressure or Strain (No Coughing)
- **Positioning** to Prevent Increased ICP Proper positioning can help manage ICP. Elevating the head of the **bed at 30 to 45 degrees** promotes venous drainage and reduces pressure within the skull.
- **Monitor and Manage ICP**: Increased ICP is a serious complication that requires continuous monitoring. Monitoring the patient's neurological status and ICP can help detect worsening conditions.
- **Administer Medications as Ordered:**
  - Antibiotics: Broad-spectrum antibiotics (e.g., ceftriaxone, vancomycin) should be started immediately to treat bacterial meningitis. Antibiotics may be adjusted once the specific organism is identified.

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- Corticosteroids: Dexamethasone may be used to reduce inflammation around the meninges and prevent further neurological damage.

- **Monitor Fluid and Electrolyte Balance.**
- **Monitor Vital Signs:**
  - Fever is common, and fever management (e.g., acetaminophen) should be done.
- **Antivirals (for viral meningitis):**
  - Acyclovir for herpes simplex virus (HSV) or varicella-zoster virus (VZV).

◊ **Seizure Precautions**:

- Implement seizure precautions if the patient has a history of seizures or is at risk due to increased ICP.
- Monitor for signs of seizures (e.g., eye rolling, jerking movements, loss of consciousness).

◊ **Isolation Precautions:**

- **Droplet precautions** for bacterial meningitis, especially Neisseria meningitidis.
- Ensure the patient is in a private room and wear personal protective equipment (PPE).

◊ **Pain and Comfort:**

- Administer analgesics for headaches and neck stiffness.
- Environmental control: Dim lights, reduce noise levels to minimize discomfort from photophobia and phonophobia.
- Provide a quiet, calm environment to reduce anxiety.

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➢ Shock:

- **Shock is a life-threatening** medical condition that occurs when the body's organs and tissues do not receive adequate blood supply, leading to **oxygen deprivation and cellular dysfunction.** It requires immediate recognition and intervention to prevent organ failure and death.
- Shock may result from **trauma**, **heatstroke**, **blood loss** or an **allergic reaction**. It also may result from **severe infection**, poisoning, and severe burns.

⇨ Types of shock:

⇨ 1-Hypovolemic Shock:

- Insufficient blood or fluid volume due to bleeding (hemorrhagic shock), dehydration, or fluid loss from burns.

◊ Common Causes:

- Trauma or surgery
- Severe dehydration
- Burns
- Internal bleeding (e.g., GI bleeding)
- Signs and Symptoms:
- Tachycardia, hypotension
- Cold, clammy skin
- Weak, thready pulse
- Oliguria (decreased urine output)
- Altered mental status (confusion, agitation)

⇨ 2-Cardiogenic Shock:

- Failure of the heart to pump effectively, resulting in decreased cardiac output.

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◊ Common Causes:

- Myocardial infarction (heart attack)
- Heart failure (e.g., left-sided heart failure)
- Arrhythmias (severe ventricular arrhythmias
- Signs and Symptoms
- Hypotension, tachycardia
- Weak, thready pulse
- Cold, clammy skin
- Dyspnea (shortness of breath)
- Cyanosis
- Pulmonary edema (crackles on auscultation)

⇨ 3-Distributive Shock:

- Abnormal distribution of blood flow, leading to inadequate perfusion of tissues despite normal cardiac output.

◊ **Types of Distributive Shock:**

- Septic Shock: Caused by severe infection leading to widespread vasodilation.
- Neurogenic Shock: Caused by damage to the spinal cord, leading to loss of sympathetic tone and vasodilation.
- Anaphylactic Shock: Caused by severe allergic reactions, resulting in vasodilation and increased capillary permeability.

⇨ 4-Obstructive Shock:

- Physical obstruction of blood flow that impairs venous return or cardiac output.

◊ Common Causes:

- Pulmonary embolism (PE)
- Cardiac tamponade

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- Tension pneumothorax
- Signs and Symptoms:
- Hypotension
- Tachycardia
- Distended neck veins (jugular venous distention)
- Dyspnea
- Chest pain (in cases of PE or tamponade).

⇨ Nursing Assessment and Interventions:

- Monitor Vital Signs:
  - Priority: Assess for hypotension, tachycardia, and changes in respiratory rate.
  - Frequent monitoring is essential for early detection and timely intervention.
  - Hypotension (systolic BP < 90 mmHg) is a hallmark of shock.
  - Pulse: Weak, thready pulse is a common sign of inadequate perfusion.
  - Respiratory Rate: Watch for increased respiratory rate, which may indicate hypoxia or metabolic acidosis.

◊ Oxygen Administer:

- Goal: Improve tissue oxygenation.
- High-flow oxygen via a non-rebreather mask or intubation in severe cases may be necessary.

◊ Fluid Resuscitation:

- Goal: Restore circulating blood volume, especially in hypovolemic shock and septic shock.
- Isotonic fluids (e.g., normal saline, lactated Ringer's) are typically used for initial resuscitation.

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- Monitor for fluid overload (especially in cardiogenic shock) by observing signs of pulmonary edema (e.g., crackles on auscultation).

◊ **Medications:**

- **Vasopressors**: Medications like norepinephrine or dopamine can be used in shock to increase blood pressure by constricting blood vessels.
- **For cardiogenic shock,** medications like dobutamine can help improve the heart's pumping ability.
- **Antibiotics:** In septic shock, broad-spectrum antibiotics should be administered as soon as possible.
- **Corticosteroids:** In cases of adrenal insufficiency or neurogenic shock, corticosteroids like hydrocortisone may be indicated.

◊ Positioning:

- Trendelenburg position (head lower than feet) may be used in some cases of shock to promote venous return to the heart.
- However, **avoid this in cardiogenic shock**, as it may worsen heart function.

◊ Monitor Organ Function:

- **Kidney function:** Monitor urine output as a measure of renal perfusion. Oliguria or anuria may indicate worsening shock.
- **Neurological status:** Monitor for altered mental status or agitation, which may indicate inadequate cerebral perfusion.
- **Liver function:** Check for signs of jaundice or elevated liver enzymes, which may indicate liver dysfunction.

➢ **Parkinson:**

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Classification: Internal Use

- Parkinson's Disease is a **chronic and progressive neurodegenerative disorder** that primarily affects **movement and motor coordination**.
- It is caused by the **degeneration of dopamine-producing neurons** in a part of the brain called the **substantia nigra**.
- This leads to a **deficiency of dopamine**, a neurotransmitter essential for smooth and coordinated muscle activity.
- **Dopamine deficiency** causes an imbalance between **dopamine and acetylcholine**, which **impairs the brain's ability to control** and **coordinate muscle movement.**

⇨ Sign and symptoms:

- **Shuffling gait** with decrease arm swing.
- Tremors: The most visible symptom, often starting in one hand at rest (resting tremor).
- **Bradykinesia:** Slowness of movement, difficulty initiating movement.
- **Cognitive impairment**: Memory problems, difficulty concentrating, and in some cases, dementia.
- **Autonomic dysfunction:** Includes orthostatic hypotension, sweating, bladder problems, and sexual dysfunction.

⇨ Nursing Interventions:

- **1. Medication Management:**
  - Levodopa/Carbidopa (Sinemet): Levodopa is **converted into dopamine in the brain**, and carbidopa prevents levodopa from being broken down prematurely. When we give these drugs, we must teach a client don't **eat protein** which **block absorption.**
  - Anticholinergics (e.g., Benztropine): Help reduce tremors and rigidity.

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- **2. Monitor for Side Effects:**
  - Levodopa can cause nausea, orthostatic hypotension, and dyskinesia (involuntary movements).
- **3. Safety and Fall Prevention:**
  - Implement fall precautions due to impaired balance and mobility.
  - Use assistive devices (e.g., walkers, canes) to help with walking.
  - Encourage physical therapy to improve muscle strength.
- **6. Physical Therapy and Occupational Therapy:**
  - Physical therapy: Focuses on improving movement, balance, and strength.
  - Occupational therapy: Aims to maintain independence in daily activities, such as dressing, eating, and bathing.

➢ **Cervical Spinal Cord injury:**

- A **cervical spinal cord injury (SCI)** refers to damage to the spinal cord at the level of the neck (C1-C8 vertebrae), which can result in varying degrees of **paralysis and loss of sensation**, depending on the severity and location of the injury.
- This type of injury can be life-threatening and requires immediate medical attention and supportive care.

⇨ Key Concepts:

- **Cervical spinal cord injuries** affect both motor and sensory functions.
- They can lead to **paralysis**, loss of **respiratory function**, and **autonomic dysfunction**.
- **C1-C4 injuries** often result in **quadriplegia** (paralysis of all four limbs) and may impair the ability to breathe without assistance.

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- **C5-C8 injuries** can result in varying levels of **quadriplegia** or **tetraplegia**, with possible partial movement in some areas.

⇨ Common signs and symptoms include:

- Loss of Sensation and Movement.
- Respiratory Dysfunction
- Autonomic dysreflexia is a medical emergency that can occur in individuals with spinal cord injuries above T6. Triggered by stimuli like a full bladder, constipation, or tight clothing.
    - **Symptoms include:**
    - Severe hypertension (↑BP)
    - Pounding headache
    - Flushed face and sweating above the injury
    - Bradycardia (slow heart rate)

⇨ Interventions and Management:

◊ **1-Airway Management:**

- Immediate priority is to ensure the patient has an open airway, especially in C1-C4 injuries where respiratory muscles may be paralyzed.
- Ventilator support may be required if the patient cannot breathe independently.

◊ **2. Immobilization:**

- Spinal precautions should be maintained to prevent further damage. This includes:
    - Cervical collar or brace to stabilize the neck.
    - Log rolling to turn the patient without compromising spinal alignment.

◊ **Monitoring for Autonomic Dysreflexia:**

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- Monitor vital signs closely. In case of autonomic dysreflexia, treat it promptly by:
- Elevating the head of the bed to lower blood pressure.
- Checking for urinary retention or any other stimulus (e.g., tight clothing, constipation).
- Administering antihypertensive medications if needed.

- **4. Fluid and Electrolyte Balance.**
- **Prevention of Complications:**
  - Skin care is crucial to prevent pressure ulcers, especially in immobile patients.
  - Deep vein thrombosis (DVT) prophylaxis may be necessary, such as anticoagulants or sequential compression devices.
  - Bowel and bladder management promote elimination and prevent complications.

⇨ Medications and Treatments:

- **Corticosteroids** (e.g., methylprednisolone) may be given within the first 8 hours to reduce spinal cord swelling and inflammation.
- **Pain management** (e.g., opioids or nonsteroidal anti-inflammatory drugs - NSAIDs) to manage the acute pain of the injury and subsequent surgeries.
- **Muscle relaxants (**e.g., baclofen) may be prescribed.
- Place in **a halo traction device** the biggest thing here, to reduce infection.

- Reduce infection from halo traction device:
  - **Assess pin sites** inside the Cranium looking for red, warm, smell drainage indicates Infection.

⇨ Big Compilation from Cervical Spinal Injuries:

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- **Autonomic dysreflexia** any **spinal cord injury T6 or high.**

◊ Autonomic dysreflexia:

- **Autonomic dysreflexia (AD)** is a potentially life-threatening syndrome **involving an abnormal overreaction** of your **autonomic nervous system** to **painful sensory input** it most often happens after a spinal cord injury at **or above the sixth thoracic vertebrae (T6).**
- Our **autonomic nervous system** is a part of your overall **nervous system** that controls the **automatic functions** of your body that you need to survive, including **Heart rate, Blood pressure, Breathing, Digestion.**

⇨ Sign and symptoms of Autonomic dysreflexia:

- The main sign of AD is **sudden** and **severe high blood pressure** (hypertension), and the main symptom is **headache**.
- Excessive sweating above the level of **spinal injury.**
- **Bradycardia** (slower-than-normal heart rate).
- **Skin flushing** above the level of spinal injury and dry, pale skin below the level of injury.
- Cold skin.
- Nausea and vomiting.
- Blurred vision.
- Feelings of anxiety.

⇨ If there is suspension of spinal cord:

- The **Jaw Thrust maneuver** should be used for airway assessment to **avoid spinal cord damage.**

⇨ What triggers autonomic dysreflexia?

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- The most common noxious stimuli that trigger AD include issues affecting your **Bladder**, **Bowel,** and **Skin** If you're at risk for developing autonomic dysreflexia it's important to be aware of all the possible triggers so you can try **to prevent them** and/or quickly **fix them** if you experience symptoms of AD.

⇨ Treatment:

- **To identify and eliminate the trigger**, if possible, before using medication or medical procedures.
- Checking and restoring **bladder drainage.** Evaluating the person's Foley catheter (if they have one) for blockage or malfunction and fixing it if necessary.
- **Testing a urine sample** for a urinary tract infection (UTI) and treating it with antibiotics, if applicable.
- **Performing a rectal exam** to evaluate fecal impaction.

➢ **Botulism:**

- **Botulism is** a rare but life-threatening condition caused by a **neurotoxin from the bacterium called Clostridium botulinum**.
- It leads to descending flaccid paralysis and can cause respiratory failure if not treated promptly.

⇨ Causes:

◊ **Foodborne Botulism:**

- Caused by eating improperly canned or preserved foods (anaerobic environment allows toxin production).

◊ **Infant Botulism:**

- **Caused by ingestion of C. botulinum** spores, often from honey.
- Do NOT give honey to infants under 1 year.

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Classification: Internal Use

◊ **Wound Botulism:**

- Spores enter through a wound (commonly in IV drug users).

◊ **Iatrogenic Botulism**

- From incorrect or excessive botulinum toxin (Botox) injections.

⇨ **Signs and Symptoms:**

- Appear **12–36 hours** after exposure (can vary).

◊ **Descending paralysis** – starts at the head and moves downward.

◊ **Neurological:**

- **Diplopia** (double vision).
- **Ptosis** (drooping eyelids)
- **Dysphagia** (difficulty swallowing)
- **Dysarthria** (slurred speech)
- **Dry mouth**

◊ **Muscular:**

- **Flaccid paralysis** – descending from cranial nerves to limbs
- **NO sensory loss** and **no changes in LOC** (level of consciousness)
- **Respiratory muscle paralysis** → respiratory failure

➢ **Alzheimer disease:**

- **Alzheimer's disease** is a progressive, irreversible **form of dementia** that gradually destroys memory, thinking skills, and the ability to carry out daily activities.

⇨ Stages of Alzheimer's Disease:

1. **Mild (Early Stage):**
    - Forgetting names or recent events
    - Trouble planning or organizing

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Classification: Internal Use

- Slight confusion and mood changes

2. **Moderate (Middle Stage):**
   - Increased memory loss and confusion
   - Difficulty performing daily tasks (e.g., dressing, cooking)
   - Behavior changes: aggression, wandering, restlessness
   - Language difficulties
3. **Severe (Late Stage):**
   - Loss of communication ability
   - Complete dependence on others
   - Loss of motor control
   - Risk for infections (e.g., aspiration pneumonia)

⇨ Safety promotion:

- Keep the medication **away from his eye.**
- **Grab bars** are installed in the shower.
- Medical **identification**
- **Decrease water** heater temperature.
- **Remove any** rugs from the floor.

➢ **Chronic alcohol abuse:**

- **Thiamine** known as **vitamin B1**. Thiamine helps to turn **food into energy** and to keep the **nervous system healthy.**
- **Thiamine deficiency** is common in people who **drink excessive amounts of alcohol.**
- **Poor Thiamine intake** can lead to **Wernicke encephalopathy,** a serious complication that **altered mental status and ataxia (poor** muscle control that affects balance, coordination, speech and eye movements).

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- **Body** is not able to make thiamine for itself. However, **you can usually get all you need from your food** like Pork. Fish. Beans, lentils. Green peas, bread, rice. Sunflower seeds. Yogurt.

⇨ For anyone who has suspected substances abuse:

- The patient will appear sign **of altered mental status change**, bradycardia, hypotension, and bradypnea.

⇨ Nursing intervention:

- Initial action maintains patency of client **airway including the position** and **oropharyngeal suction.**
- Administer reversal agent for unknown substances (respiratory depression) **Naloxone** or **flumazenil.**

➢ **Bell's palsy:**

- Bell's palsy is a **temporary facial paralysis** caused by inflammation or compression of the facial nerve (cranial nerve VII).
- It occurs more frequently in pregnant individuals, especially:
  - During the third trimester
  - Or in the first week postpartum.

⇨ Manifestation:

- **Inability to smile** and loss of for head and eyebrow movement.
- Decreased **lacrimation** (tear production)
- Inability to close the effected eye completely.
- Drooping of lower lip.

⇨ Although the exact reason Bell's palsy occurs isn't clear, it's often related to having a viral infection. Viruses that have been linked to Bell's palsy include viruses that cause:

  - **Cold sores and genital herpes,** also known as herpes simplex.

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- **Chickenpox and** shingles, also known as herpes zoster.
- Infectious mononucleosis, caused by the **Epstein-Barr virus.**
- Respiratory illnesses, caused by adenoviruses.
- German measles, also known as rubella.

⇨ Risk factors

- Have an **upper respiratory infection**, such as the flu or a cold
- Have diabetes
- Have high blood pressure.

⇨ How is Bell's palsy treated?

- Most cases of Bell's palsy **improve without treatment**. Still, your healthcare provider **may recommend one or more of these therapies** for symptom relief and faster recovery.
- **Eye care:** Eye drops, including artificial tears.
- **Oral corticosteroids**: Oral corticosteroids (like prednisone) can help decrease nerve swelling.
- **Antiviral medications:** Antiviral medications may speed up recovery.

➢ **Myasthenia gravis:**

- Myasthenia Gravis is a chronic autoimmune disorder in which antibodies destroy or block **acetylcholine receptors** at the neuromuscular junction, leading to muscle weakness.
- **Myasthenia gravis** affects the voluntary muscles of the body, especially those that control the **eyes, mouth, throat, and limb**.
- MG:
  - does not involve sensory or **motor nerves** therefore does not cause **hyperreflexia or paresthesia.**
  - **The problem is** with muscle movement (not working properly).

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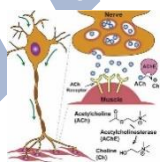
- **There is no problem** with sensation (the person does not feel tingling, pain, or numbness).
- That's why symptoms like paresthesia (tingling) or hyperreflexia (overactive reflexes) are not present.

⇨ What is the main cause of myasthenia gravis?

- The immune system **makes antibodies** that block or destroy many of your **muscles receptor** sites for a **neurotransmitter** called **acetylcholine.**



⇨ Manifestation:

- Difficult speaking, **swallowing**, and chewing.
- Fluctuating ptosis (eyelid drooping).
- **Diplopia** (double vision).
- Fatigue.
- **Breathing difficult** and **diminished breath sound.**

⇨ Management:

- **Receiving vaccine (influenza vaccine**) to prevent infection.
- Eating soft foods to prevent choking and aspiration.

⇨ Treatment:

- Take **pyridostigmine** 45-60 minutes before meals. is a medication used in **Myasthenia Gravis** to **improve muscle strength** by increasing the amount of **acetylcholine** at the neuromuscular junction.

⇨ Big deadly complication of MG:

- **Myasthenic crisis** this leads to **respiratory arrest.** So, we must protect the airway and breathing we always make sure to have an **intubation set near bedside.**
- **Dry esophagus** where food can get stuck.

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- **Drugs before meals as Pyridostigmine** which increase secretions to help client swallow.

➢ Multiple sclerosis (MS):

- Multiple sclerosis is a **chronic, progressive, autoimmune disorder** that affects the **central nervous system (CNS)** the brain and spinal cord.
- In MS, the **immune system attacks the protective Myelin sheath** that **covers nerve fibers** and causes **communication problems** between your **brain and the rest of your body**. Eventually, the disease can cause **permanent damage or deterioration of the nerve fibers (brain, spinal cord).**

⇨ Signs and symptoms of MS:

- **Numbness or weakness** in one or more limbs that typically occurs on one side of your body at a time.
- **Incoordination,** loss of balance and fatigue are usually present causing impaired mobility and risk for fall and injury.
- Tingling, Fatigue and Vertigo
- Unsteady gait or inability to walk.
- **Partial or complete loss of vision**, usually in **one eye at a time**, often with pain during eye movement
- Prolonged double vision and Blurry vision
- Problems with sexual, bowel and bladder function
- Slurred speech
- Cognitive problems and Mood disturbances.

⇨ Treatment:

- B**aclofen** (1st line)

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- **NCLEX Tip:**
- Watch for **drowsiness**, hypotension, **fall risk.**

- **Corticosteroids (for acute attacks):**
  - **This is a corticosteroid used during acute exacerbations (relapses) of MS to reduce inflammation in the central nervous system.**
- There's no cure for multiple sclerosis. However, there are treatments to help speed the recovery from attacks, modify the course of the disease and **manage symptoms.**

➢ **Guillain Barre Syndrome (GB):**

- **A rare neurological disorder** in which **the immune system attacks the peripheral nervous system.**
- The immune system attacks the **myelin in the peripheral nervous system (PNS)** the nerves **outside the brain and spinal cord**.
  - This causes:
  - Sudden, **ascending muscle weakness** (starting from the legs and moving upward)
  - Numbness or tingling
  - **Loss of reflexes**
  - Risk of **paralysis**, including breathing muscles

⇨ **Manifestations:**

- **Ascending muscle paralysis** and a **weakness** or absence of reflexes that usually follow **respiratory** or **gastrointestinal infection**.
- The priority assesses client **respiratory status** to monitor signs of respiratory failure as i**n ability to cough, dyspnea and hypoxia.**
- **Back pain which can be severe is due to nerve root inflammation.**

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- Respiratory **Failure will kill the client**
- **At risk for DVT due to lack of ambulation.**

⇨ Early Signs GB is getting Worse:

- Inability Cough.
- Inability to lift the eyebrows or even lift the head.

⇨ Risk factor:

- Pneumonia and respiratory failure.
- **Pressure injury** because the client has decreased mobility due to muscle weakness.
- Venus's thrombosis

⇨ Treatment:

- Give IVIG (Intravenous Immunoglobulin) via IV infusion.

➢ **Amyotrophic lateral sclerosis:**

- a **progressive, fatal neurodegenerative disease** that affects **motor neurons** in the brain and spinal cord.
- It causes **gradual paralysis** of voluntary muscles, while **sensation, cognition, and bowel/bladder function**

⇨ Signs and symptoms:

- Fatigue, muscle spasm and progressive muscle weakness.
- **Difficult swallow and difficult speaking**
- **Respiratory failure.**

⇨ Treatment focus on mange the symptoms:

- Respiratory support with **BIPAP or tracheotomy**
- Feeding tube for eternal feeding
- Mobility assistance, walker or wheelchair.

⇨ Big Safety:

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- Dysphagia that's difficult swallowing then progresses into Difficult of speaking. Priority finding: Increased respiratory Secretions that eventually kill the Client.

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7- Musculoskeletal

➢ Diabetic Clients and Amputation Care:

- Why Diabetic Clients Are at Risk:
  - **High blood glucose levels:**
  - increased risk of infection
  - **Bacteria thrive in sugary blood, leading to:**
  - Tissue necrosis (especially in the toes).
  - Progressive infection up the leg
  - Potential amputation (commonly below the knee)

⇨ Post-Amputation Nursing Interventions:

- **NEVER elevate the residual limb:**
  - Elevation decrease circulation
  - **Keep the limb in a dependent (downward) position** to promote blood flow
- **Phantom limb pain is real:**
  - Caused by **nerve damage**
  - Treat it like any other pain (e.g., pain meds)
- **Prevent hip flexion contractures:**
  - **Do not elevate the residual limb**, especially **after the first 24 hours**
  - Use a **compression bandage** to:
  - Reduce swelling (edema)
  - Promote healing

⇨ For discharge teaching:

- **skin assessment:**
  - Check daily for **redness**, **irritation**, or signs of infection
- **Hygiene:**
  - Wash residual limb **daily with soap and water**

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- Keeps the area clean and infection-free

- **Positioning to prevent contractures:**
  - **Lie in a prone position (on the stomach)**
  - 30 minutes
  - 3 times per day
  - Prevents hip stiffness and encourages circulation.

➢ Osteomalacia:

- **a metabolic bone disease** in adults characterized by **softening of the bones** due to defective bone mineralization, most commonly caused by **Vitamin D deficiency.**

⇨ Risk Factors:

- **Sunlight Exposure:** Limited exposure increases the risk.
- **Dietary Intake:** Low consumption of vitamin D-rich foods.
- **Chronic Kidney or Liver Disease:** Impairs conversion of vitamin D to its active form.

⇨ Clinical Manifestations:

- **Bone Pain:** Especially in the hips, pelvis, and spine.
- Muscle Weakness: Proximal muscles are typically affected.
- Weight Loss
- **Hypocalcemia Symptoms:** Including paresthesia, muscle cramps, and positive Trousseau's and Chvostek's signs.

⇨ What causes osteomalacia?

- Developments are most commonly due to vitamin **D deficiency** (often from not getting enough sunlight).
- ↓ Vitamin D → ↓ Calcium absorption → ↓ Bone mineralization → Soft bones

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Classification: Internal Use

◊ Nursing Management:

- Administer Vitamin D and calcium supplements
- Encourage safe physical activity
- Teach fall prevention strategies
- Promote sun exposure (15–30 min/day)
- Dietary education: Foods rich in Vitamin D (e.g., fish, fortified milk)

➢ Osteoporosis:

- **Osteoporosis** is a **chronic, progressive metabolic bone disease** characterized by **low bone mass**, **deterioration of bone tissue**, and increased **bone fragility** → leads to **fractures**, especially in the spine, hip, and wrist.

⇨ Causing Osteoporosis:

- Clients are taking **long term steroids** like Prednisone.
- Excessive **caffeine** intake.
- **Hyperparathyroidism** is because it puts the **calcium high** into the **blood.** So, Hyperparathyroidism **drains calcium from the bone**, and it accumulates in the blood which makes **calcium high in the blood.**

⇨ Treatment:

- **Bisphosphonates** (e.g., alendronate)
  - Take in the morning on an **empty stomach**
  - Sit upright for at least **30–60 minutes**
  - Not **administer Bisphosphonate** with **Calcium supplement** will Reduce absorption.
  - Administer it with a **full glass of water.**
- Calcium and Vitamin D supplements
- **Lifestyle Changes:**

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- Weight-bearing exercises (e.g., walking, dancing)
- Avoid smoking and alcohol
- Fall prevention at home

⇨ Teaching about fall precautions for Osteoporosis clients:

- **Home Environment:**
  - Keep hallways well-lit.
  - Remove throw rugs and avoid clutter
  - Install grab bars and handrails as needed
  - Use rubber mats in the shower to prevent slipping
- **Lifestyle Modifications:**
  - Stop smoking
  - Reduce caffeine intake Caffeine is a major risk factor; it decreases calcium absorption
  - Limit alcohol consumption
- **Exercise & Mobility:**
  - Encourage frequent ambulation
  - Promote weight-bearing exercises (e.g., walking,)
  - Goal: Walk 30 minutes, 4 times per week
  - Avoid **high-fall-risk activities** (e.g., running, climbing)
- **Nutrition:**
  - **Calcium-rich foods:** dairy products, green leafy vegetables, almonds
  - **Ensure adequate Vitamin D intake** (sunlight, supplements, fortified foods).
- **Monitor Client with osteoporosis:**

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- **Client Height**. Dual energy X-ray (procedure that measures the amount of calcium and other minerals in a bone by passing X-rays with two different energy levels through the bone).

➢ Fractures:

- The number one Cause of Fractures is From **Osteoporosis** brittle porous bones, mainly from **long Steroid**.

◊ Types of Fractures:

⇨ 1-Skull Fracture:

- This the **deadliest** you as you can See **Cerebral Spinal Fluid** CSF coming out of the nose clear liquid drainage in the nose Called **Rhinorrhea.**

⇨ Complications:

- **Increased intracranial pressure (ICP)**
- **Meningitis** (especially with CSF leak)
- **Brain injury**
- **Seizures.**

⇨ NCLEX Priority Interventions:

- **Neuro assessment** every 1-2 hours
- **Monitor for CSF leak** → test drainage
- **Avoid nasal suctioning or NG tubes** in suspected basilar fracture (Inserting anything through the nose like an NG tube or suction catheter) may accidentally enter the **brain cavity** through the fracture.
- **Head of bed elevated** to 30°
- **Administer antibiotics** if open fracture or CSF leak.

◊ 2-Rib Fractures:

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- **Medical terms** for a broken rib are usually caused by car accidents, sports injuries, or other trauma.
- Management of rib Fracture, focus an **adequate pain** control Followed by (Ambulation, spirometer).

⇨ Signs and Symptoms (S/S):

- Pain with deep breathing, coughing, or movement.
- Shallow breathing to avoid pain.
- Bruising or swelling over the rib area.

⇨ What NOT to do (NCLEX Traps):

- Do NOT wrap or bind the chest with tight bandages → This restricts breathing and can cause pneumonia or atelectasis.
- Do NOT encourage deep breathing without proper pain control.

⇨ Priority:

- **Without adequate pain Control,** Respiration Can become shallow which may lead to build of secretions, atelectasis (the collapse of part or all a lung), and pneumonia.

⇨ **3-Mandibular Fracture:**

- **A Jaw Fracture** bleeding and drooling from the mouth.
- The airway issue **kills this Client** Make sure to suction the mouth.
- Bleeding and drooling from the mouth priority to **maintain patient in airway** for a client with a mandibular fracture.
- A surgical procedure that involves **wiring** the patient's upper and lower jaw together to restrict their food intake so it's important to **Suction the Mouth.** If Suction is not effective and develops respiratory distress he should **cut the wires.**

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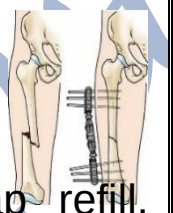
⇨ **4-Traumatic Fracture:**

- **Open reduction internal fixation (ORIF)** is surgery to repair broken bones (bone fractures).
- **An orthopedic surgeon** will realign (set) your bones to their correct position and then secure them in place so they can heal and grow back together.



⇨ NCLEX Tips:

- Monitor **neurovascular status** (color, temp, pulses, cap refill, movement, sensation) **after ORIF**
- Look for signs of **compartment syndrome**: severe pain, pallor, paraesthesia, pulselessness
- Post-op priorities: **pain control**, **early mobility**, **infection prevention.**

⇨ **5-A Hip Fracture:**

- A hip fracture is a break in the upper part of the femur (thigh bone), usually near the femoral neck.

⇨ Clinical Manifestations:

- Severe groin or hip pain
- Shortening of the affected leg
- External rotation of the leg
- Inability to bear weight
- Muscle spasms
- Ecchymosis (bruising)
- Tenderness over hip/thigh

⇨ Position for Client with hip fracture:

- So important For the Client with **hip fracture** the legs must be **abducted away from each other.**

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- Never put **the legs together** Never cross the legs.
- Do **not lean forward.**
- Never sit the **Client at 90 degrees** and Never in a chair.
- Turn to the **Client every 2 hours.**

◊ Surgical Treatment:

- **ORIF (Open Reduction and Internal Fixation):**
  - This is used when the broken bone can be realigned and held in place.
  - The surgeon repairs the bone without replacing the joint. This is usually for patients with a healthy joint.

- **Total Hip Replacement (THR):**
  - This involves replacing both the **femoral head and the hip socket (acetabulum)**.
  - It is typically used when the fracture is combined with joint disease (like osteoarthritis or rheumatoid arthritis).

⇨ Before Surgery:

- Should stop any NSAID as **Celecoxib** 7 days before
- Nurse should report new onset burning on urination that's indicate of Infection.

⇨ Teaching for Total hip replacement after surgery:

- Avoid leaning Forward, The Client must not force the hip more than 90 degrees of Flexion.
- Perform leg exercise 2-3 times a day.
- Avoid Twist from the waist.
- **Avoid reaching across** the affected extremity or bend forward >90 degree when dressing or putting slipper.
- Client Instruct to use assistive equipment when getting dressed.

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- **Use a toilet riser** to prevent excessive hip flexion.
- **The average length of Stay** in the hospital should be between 3-5 days the Client should **be fully weight bearing** by discharge (means the patient put weight through the affected limb. Weight-bearing is the amount of weight a patient puts on an injured body par
- Prescribe **anticoagulant** after surgery for 2 weeks
- Ankle exercise, Anti embolic socks, and frequent mobilization.
- Clients will use assistive devices (Walker -crutches and knee Immobilizer to help ambulation but he should be fully weight bearing).

➢ **For Cast Care:**

- **We want to make sure it's** Clean and dry and never gets wet.
- **Cover the Cast**: with a Plastic bag for bathing **if set the cast:** wet, it can lead to infection and it can even fall apart.
- **Elevate the Cast extremity** above the heart for at least 48hrs.
- **Use hair dryer on Cool** setting to relieve an itch.
- **Neve put anything** down the Cast it can get infection no rulers.

◊ **Cast Care Complications:**

⇨ 1-Hot spots:

- "Hot spots" are **localized areas under a cast that feel warm to the touch**, often reported by the patient as burning, pressure, or pain in a specific spot.
- This indicates infection as well as **hot area**, foul odor you must report The HCP or even Feels Warm to touch and foul smelling.

⇨ 2-Compartment syndromes:

- a-limb threatening Condition Caused by pressure after direct injury as Fracture, dislocation even Burn.

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- **Pain** but this unrelieved with **morphine even after pain Mediations** so we must notify the Provider Immediately.
- **Paresthesia** means Tingling, burning, numbness (Problem moving Fingers, extending Casted Fingers and toes with great difficulty, Pain in increases with Passive movement).

⇨ Intervention

- Prepare Client to remove the cast.
- Prepare clients for emergency **fasciotomy** to release pressure.
- **Fasciotomy** is a surgical procedure where **the fascia is cut to relieve tension** or pressure to treat the resulting loss of circulation to an area of tissue or muscle.

⇨ Expected outcome:

- Capillary refills in less than two seconds.
- Active range motion in the affected finger.
- If you have noted any symptoms, you must assess the Temp and movement of The Finger Then Notify HCP.

➢ Buck's Traction:

- **Traction** means pulling on part of the body Most often, traction uses devices such as **weights and pulleys.**
- Device uses **Free hanging weights** just pulls the leg and bones back into **alignment to stop muscle spasms**. **The weight** cannot be In the Floor or in the body.
- **Traction ropes** → must be tight. Not Loose or resting on the bed or floor.
- **Keep the limb in the neutral position and** always assess Skin for breakdown.

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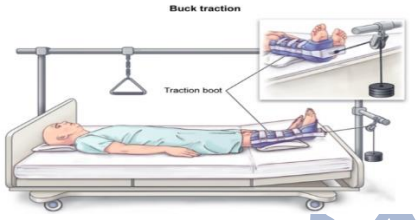
- **Neuro checks on the limb** make sure assess PMSC.

⇨ **So, what is PMSC: -**



- P → Pulse
- M → Motor Function
- S → Sensation, Circulation
- C → keep the **client Supine** or Flat and never raise the head of the bed over 25 degrees.
- Instruct the Client **his heel should be elevated** with nothing under the wound to reduce pressure.
- Sever Pain may indicate compartment Syndrome and muscle spasms.

⇨ Improper Maintain Traction may lead to:

- Muscle Spasm, Increase Pain.

⇨ Compilation From Fracture, skeletal traction:

- DVT, compartment Syndrome, Constipation.

⇨ Expected Prescription

- Administer stool Softener as **decussate Sodium.**
- **Use incentive Spirometer** and administer anticoagulant.
- Increase fluid Make, High fiber diet.
- Assess skin integrity, assess pin site.

⇨ Prioritization For Client after any type of Surgery:

- Bleeding
- Infection
- Position Education

⇨ Bleeding:

- **Hemoglobin less seven**.
- **Monitor Pulses distal** to the Injury

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- **Diminished pulses** are expected, but absent pulses are not expected we how to report.

⇨ Infection WBCs (5000-10000):

- Elevated WBCs over 10,000 priorities to report
- Assess the Surgical site.

⇨ What will you assess on the Surgical Site?

- Looking For drainage, Note the Color, amount, and odor.
- Thick yellow drainage means infection.
- Look For red or Worm skin Signs.

➢ Halo external Fixation device:

⇨ Purpose:

- Used for cervical spine immobilization after cervical spine fractures, dislocations, or post-spinal surgery.
- Keeps the spine aligned while bones heal.
- Allows early ambulation while maintaining cervical spine stability.

⇨ Emergency Care:

- **Keep a wrench** or Allen key attached to the vest at all times used to remove the front of the vest in case of CPR.
- **NCLEX tip:**
  - You do not remove the entire device; you just remove the anterior portion of the vest to allow chest compressions. Educate caregivers and client on emergency procedures.

⇨ Care for the Client with Halo external Fixation device:

- **Cleaning Pin** Sites with sterile Solution
- Keep the Vest liner clean and dry.
- **Placing foam** under pressure Point to Prevent pressures Injury.

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- Placing **a small pillow** under Client head
- Avoid holding the frame device.

⇨ Quick NCLEX Tips Summary:

- Keep wrench with the patient.
- Never move patient with halo device.
- Perform daily pin site care.
- Monitor for infection.
- Check skin under vest.
- Halo allows for mobility unless otherwise restricted.

➢ **Boston Brace:**

- Used to **slow the progression** of spinal curvature in **idiopathic scoliosis**.
  - Idiopathic scoliosis = **a lateral spinal curvature** with no known cause, commonly found in adolescents during growth spurts.
- The brace does **not cure** the spinal deformity but helps to **prevent further worsening**.
- Most effective **before skeletal maturity**.

⇨ Nursing Education & Priorities:

- Importance of wearing the brace as prescribed to stop curve progression.
- Skin care:
  - **Check skin irritation** or pressure areas.
  - Wear a soft cotton shirt underneath the brace.
- Encourage normal activities while wearing braces. No need to limit physical activity, unless advised otherwise.

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- Provide emotional support, teens may struggle with body image issues.
- **Most Braces are wearing** for 18-23 hrs. per day and remove for Bathing and exercise.

➢ Ankylosing Spondylitis:

- A **chronic autoimmune inflammatory disease** that primarily affects the **spine and sacroiliac joints**, leading to **fusion of the vertebrae** over time.
- **Ankylosing** means **stiff or rigid**.
- Spondyl means **spine**. Itis refers to inflammation.

⇨ Characterized by:

- Stiffness of the spine leading to restricted Spinel mobility.
- Low Back Pain and morning stiffness that improve with activity.

⇨ The client with Ankylosing spondylitis should:

- **Promote extension** of the skins, daily stretching spine, stretching exercise swimming.
- Stop smoking.
- Should rest during Flare ups when joints are especially achy and stiff, try staying in bed.
- Encourage sleep on the back on **Firm Matters.**

⇨ Treatments:

- Manage pain with heat.
- NSAID Take with meal or snacks.

➢ Osteoarthritis (OA):

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Classification: Internal Use

- **Osteoarthritis (OA) is** a degenerative **joint disease** that occurs when the **protective cartilage** cushioning the ends of bones **wears down over time**.
- This results in **massive Pain** basically the **bones rubbing** leading to sever Pain. **Pain results** during activity and **pain relive at rest.**

⇨ Treatment:

- Medication:
  - Acetaminophen.
  - Nonsteroidal anti-inflammatory drugs (NSAIDs).
  - Duloxetine Normally used as an **antidepressant,** this medication is also approved **to treat chronic pain, including osteoarthritis pain.**
- Therapy:
  - A physical therapist can show you exercises to strengthen the muscles around your joint, increase your flexibility and reduce pain.
- Surgery:
  - **Total knee replacement** is a surgical to replace the knee Joint and Common For both RA, OA

⇨ Post operation Care:

- **Never Place anything under Knee** that just got operated No Pillows, No support under Knee.
- **Weight bearing** is good (In orthopedics, weight bearing refers to **how much weight or force is put through a specific limb.).**
- **Flexing** the foot every hour to prevent Blood Clot and use Blood thinner.

⇨ NCLEX Key Points:

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- OA pain is worse with movement, relieved by rest
- Differentiate from **Rheumatoid Arthritis,** which has morning stiffness that **improves with activity**
- Safety, joint protection, and mobility support are nursing priorities.

➢ Rheumatoid arthritis:

- a **chronic autoimmune** inflammatory **disease** that causes the body to attack its own **synovial joints**, leading to **pain**, **swelling**, **stiffness**, and eventually **joint deformity**.
    - synovial joints are movable joints in the body. They contain a **special fluid called synovial fluid** that helps lubricate the joint and allows smooth, pain-free movement.

⇨ Characteristic:

- Pain and Swelling initially appear in the small joints of the hands and feet
- **Symmetrical joint involvement:** RA typically affects the same joints on both sides of the body, such as both knees , both wrists
- Morning stiffness in joints that lasts more than 60 minutes, and may extend to several hours
- **Early RA** usually starts in smaller joints (fingers and toes). As the disease progresses, it can spread to **wrists, knees, ankles, elbows, hips, and shoulders**
- Pain is often **worse at rest and improves with activity**, because movement increases circulation and reduces inflammation.

⇨ How is it diagnosed?

- **Diagnosis:**
    - Elevated ESR and CRP (inflammation)

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- Positive Rheumatoid Factor (RF)

⇨ Education:

- Don't elevate the **knee** with Pillows at night.
- Encourage a warm shower or even a bath to de**crease** inflammation.
- Balance rest and activity
- Use heat for stiffness, cold for swelling
- Encourage range-of-motion (ROM) exercises
- Use assistive devices to reduce joint stress
- Regular follow-ups for labs and medication monitoring

⇨ Rheumatoid arthritis Treatment:

- **Methotrexate** (is a type of medicine called an immunosuppressant).
- **NSAID** (Aspirin, Ibuprofen, Naproxen).
- **Corticosteroid.**
- Pain management.

⇨ Goal of treatment

- Manage Pain assessing for adequate Pain Control This is the Priority.

➢ Gout:

- Common and complex forms of **arthritis** can affect anyone. When your body has extra **uric acid.**
- It's characterized by **sudden, severe attacks** of pain, swelling, redness, and tenderness **in one or more joints**, most often in the **big toe.**

◊ But why does this happen...?

- That's happening from **high purine food** that increases the **uric acid** inside the blood like any **animal meat product** or even **alcohol.** (chicken, steak, liver, sea food, alcohol, beer, wine)

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Classification: Internal Use

◊ Treatment:

⇨ For acute attacks for gout:

- **Colchicine.**

⇨ For long term:

- **Allopurinol.**

⇨ High risk for gout:

- Obesity
- Hypertension
- Dyslipidemia.
    - **Dyslipidemia** is a condition in which there are **abnormal levels of lipids (fats)** in the blood, including:
    - **High LDL (low-density lipoprotein)** → "bad" cholesterol
    - **Low HDL (high-density lipoprotein)** → "good" cholesterol
    - **High triglycerides** It increases the risk of **cardiovascular diseases**, such as **heart attack**, **stroke**, and **atherosclerosis**
- Insulin resistance / Diabetes
- Sedentary lifestyle
- Alcohol consumption
- High-purine diet

⇨ Teaching:

- Increase fluid Intake 2 liters per day.
- Implementing **low purine diet,** avoid meat, liver and Seafood
- Avoid only high dietary purine intake Not **avoid All Protein**
- **Low-fat dairy products are a good** source of Protein reduced risk gout.
- **Lose weight** and avoid high purine foods.
- High fluid intake to wash out all purine from the body.

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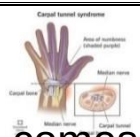
Classification: Internal Use

➢ Carpal tunnel syndrome:



- Carpal tunnel syndrome happens when the **median nerve** comes under pressure in your wrist.
- The median nerve:
  - Provides **sensation** to the **thumb**, index finger, middle finger, and half of the ring finger.
  - Controls **movement of some hand muscles**, especially those at the base of the thumb.

⇨ Symptoms:

- **Pain, tingling, numbness, and weakness** in the wrist and hand.
- Symptoms often **worsen at night or during sleep**.
- Can be relieved by using a **wrist splint** to keep the wrist straight.

⇨ What causes carpal tunnel syndrome?

- **Carpal tunnel syndrome** can be caused by anything that makes the nerves or tendons larger:
  - a wrist or arm injury, such as a fracture
  - activities that involve repetitive use (overuse) of your wrist and hand, including using vibrating tools
  - A cyst or tumor in the carpal tunnel

⇨ How is carpal tunnel syndrome treated?

- avoiding activities that cause symptoms
- wearing a wrist brace (also called a splint) to keep your wrist straight, especially at night
- physiotherapy.

➢ Fat embolism syndrome:

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- A **rare but life-threatening complication** that occurs when **fat globules** enter the bloodstream, usually after **long bone or pelvic fractures**, and **obstruct small blood vessels**, leading to **ischemia** and **organ dysfunction**.

⇨ Causes / Risk Factors:

- **Long bone fractures** (e.g., femur).
- **Pelvic fractures**
- **Orthopedic surgeries**, especially within **12–72 hours**
- Trauma that allows **fat from bone marrow** to enter circulation.

⇨ Pathophysiology:

- Fat globules travel via the bloodstream and lodge in **capillaries** in the:
- **Lungs** → respiratory distress
- **Brain** → neurological symptoms
- **Skin** → petechiae (tiny hemorrhages)

⇨ A serious complication usually occurs after:

- Long bone fractures (e.g., femur)
- Pelvic fractures
- Orthopedic surgeries (especially within 12–72 hours)
- Fat globules from bone marrow enter the bloodstream and lodge in the lungs, brain, or skin, causing symptoms

⇨ Sign and symptoms:

- Altered mental status change (restlessness)
- chest Pain, Respiratory distress, Petechia hemorrhage

⇨ Nursing Care:

- Minimize movement of the injured extremity to reduce the risk of dislodging (fat globule) into the blood stream Which Obstruct small

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blood. **Immobilize the injured extremity early** to prevent fat release.

- Administer **oxygen** as needed.
- Monitor **vital signs** and **mental status** closely
- Prepare for **mechanical ventilation** if severe
- Maintain **fluid balance** to support circulation
- **Notify HCP immediately** if symptoms appear

➢ **Rhabdomyolysis**:

- Rhabdomyolysis is the **breakdown of skeletal muscle,** which releases **myoglobin** into the bloodstream.
    - Myoglobin is toxic to the kidneys, and in high amounts, it can cause acute kidney injury (AKI).

⇨ Common signs and symptoms:

- weak muscles, muscle stiffness, muscle pain and a change in your pee color.
- Acute renal Failure Can occur from **elevated Myoglobin** (Protein found in muscle Tissue).

⇨ Common Causes (NCLEX loves these) Trauma or crush injuries:

- Prolonged immobility.
- Extreme exercise (e.g., marathon runners, military training)
- Seizures or electrical burns.

⇨ NCLEX Traps to Avoid:

- “Monitor hemoglobin and hematocrit only” ✕ → Focus on CK, creatinine, potassium.
- “Restrict fluids to prevent overload” ✕ → You need fluids to prevent renal damage.

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⇨ Priority Nursing

- Rapid IV fluid resuscitation to prevent kidney damage.

⇨ Sign and Symptoms

- Bloody urine, oliguria, Fatigue.
    - Oliguria:
        - Urine output is less than .5ml /kg.
        - Less 280ml in 8hrs.
        - Less 30ml in one hour.

⇨ Management and Nursing Interventions:

- **Fluid resuscitation:**
    - Aggressive IV fluid therapy (e.g., normal saline or lactated Ringer's) to flush out myoglobin and prevent kidney damage.
    - Electrolyte monitoring and correction.
- Pain management.
- Patient Education:
- Educate patients on preventing muscle injury, proper hydration, and avoiding excessive physical exertion.
- Advise about avoiding alcohol or drugs that can contribute to rhabdomyolysis.

➢ **Cyclobenzaprine drug:**

- A **centrally acting skeletal muscle relaxant** used to treat **muscle spasms** associated with **acute musculoskeletal conditions**.

⇨ Important NCLEX Nursing Considerations:

- Use **caution in elderly patients** (risk of confusion, falls)

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- **Do not use for more than 2–3 weeks** without reassessment
- Contraindicated in:
- **Liver disease** (e.g., hepatitis)
    - The drug is metabolized in the **liver**, so liver impairment can **reduce metabolism**, causing **toxicity** and **increased CNS depression**. Avoid in clients with **hepatic impairment**.
- **Elderly patients** – ↑ risk of sedation, confusion, and falls
- **Heart conditions** (e.g., arrhythmias, recent M

➢ **When you use Crutches:**

⇨ Proper Fit of Crutches:

- **Height:** Crutch pad should be **2–3 finger widths (1.5 inches)** below the **axilla (armpit)**
- **Handgrip Position:** Allows for **20–30° elbow flexion**
- **Weight-bearing:**
    - **Never rest body weight on the axilla** → risk of **brachial nerve damage**
- **Custom Fit:**
    - Never use another person's crutches they're measured for **individual clients only**
    - Use a **gait belt** before ambulation
    - **Start in tripod position**: crutches placed 6 inches to the side and in front forming a triangle

⇨ Safety Tips:

- Use rubber tips on the crutches.
- Keep floors dry and free of obstacles.
- Avoid loose rugs or clutter.

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- Wear non-skid shoes.

⇨ **Teaching how to use the crutches on two points gaits:**

- First, Move the **crutch on the injured side** (Right crutch) **and** move **foot non injured side** (Left foot) TOGETHER, then will move the crutch on the non-injured side (left crutch**) and the leg injured side** (Right foot) **TOGETHER.**

⇨ **Teaching how to use the crutches on four points gaits:**

- Move the **crutch on the injured side** (Right crutch) **and then** move **foot none injured side** (Left foot) then will move the crutch on the non-injured side (left crutch**) and the leg injured side** (Right foot).
- Each point is **separate.**

⇨ **Teaching how to use the crutches on three points gaits:**

- Move **both crutches** and the **injured leg together** at the same and then move the non-injured leg.

⇨ **Teaching how to use the crutches on two swing gates:**

- Move **both crutches** forward then will **swing both** legs forward.

⇨ **What about crutching while climbing stairs:**

- For up the stairs:
  - UP with **an unaffected leg first that's good leg** forward by the crutches and then bad leg that's broken leg.
- For down the stairs:
  - **move crutches down** the stairs by bad leg that's broken leg forward by good leg.

➢ **Cane training:**

- Cane is always Placed on the **Stronger side,** so Stronger side holds the Cane.

⇨ NCLEX Reminder:

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- Crutches: Never press on the axilla risk of nerve damage
- Gait belts and proper fitting are essential
- Always teach stair safety
- Know gait patterns and when to use each.

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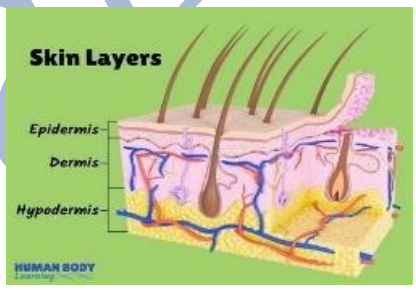
8-Integumentary system

➢ integumentary system:

- The integumentary system is the **body's largest organ system**, consisting of:
- **Skin**
- **Hair**
- **Nails**
- **Sweat and sebaceous (oil) glands.**

◊ layers of skin:



- Epidermis
- Dermis
- Hypodermis (the bottom or fatty layer).

◊ Burns:

- **Tissue damage** brought on by **heat, chemicals, electricity**, radiation or the sun.

◊ **Degree of burns:**

- First degree:
- **Mild** (like most sunburns). The top layer of skin (epidermis) turns red and is painful **but doesn't typically blister.**

◊ Symptoms:

- Dry skin.
- **Blanchable Redness**
  - **Definition:** When you press the red skin, it **turns white**, then **returns to red** when pressure is released.
  - **Indicates: Normal circulation**
  - **Seen in:** Early stages of pressure injury or irritation; **reversible** if pressure is relieved

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Classification: Internal Use

◊ Management:

- **Run cool (not cold) water** over the affected area for **10–15 minutes**
  - **Do NOT apply ice** → Ice can cause **vasoconstriction** and **worsen tissue damage.**

◊ **Pain Relief:**

  - Give over-the-counter analgesics:
  - Acetaminophen (Tylenol) or Ibuprofen (Advil).

◊ NCLEX Tip:

  - Always prioritize **cool water**, **no ice**, and **pain management**. Also, assess the **extent** (Determine how much of the body is affected by the burn.
  - **Use tools like:**
  - **Rule of Nines (for adults)**
  - **and cause** to rule out deeper burns.

◊ **Second degree:**

- Affects both the **epidermis (top layer)** and part of the dermis (second layer).

◊ Symptoms:

- Severe pain
- Redness and swelling
- Large, painful blisters
- Red, moist, shiny skin with fluid-filled vesicles
- Sensation is intact (pain is intense due to nerve exposure).
  - **If sensation is intact** → This usually indicates a **superficial (first-degree)** or **partial-thickness (second-degree)** burn.

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- **If sensation is absent** → That may suggest a **full-thickness (third-degree)** burn, where nerves have been damaged or destroyed.

◊ Common Causes:

- Scalds from hot water or steam
- Flame injuries
- Brief contact with hot objects
- Severe sunburn
- Chemical or electrical burns.

◊ Management:

- **Cool the burn under cool** (not cold) running water for 10–15 minutes
  - Do not apply ice – can worsen tissue damage
- Pain control
  - Use NSAIDs like ibuprofen or acetaminophen
- Blister care:
  - Do not **pop blisters**
  - Keep area clean, dry, and covered with sterile non-stick dressing
- Topical antibiotics:
  - Apply **silver sulfadiazine** (Silvadene) cream to prevent infection
- Elevate the burned area
  - Helps reduce swelling and pain, especially for arms or legs.

◊ NCLEX Tip:

- Always assess for **signs of infection**: pus, odor, increasing pain, fever
- If the burn covers a **large area or is on the face, hands, feet, or genitals**, it may require **medical evaluation** or **hospital admission.**

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Classification: Internal Use

➢ Third degree:

◊ Involves **all three layers** of the skin:

- **Epidermis**
- **Dermis**
- **Subcutaneous fat**

◊ May also affect:

- Hair follicles
- Sweat glands
- Nerve endings
- Blood vessel.

◊ What does it look and feel like?

- The burned area may appear **dry, stiff, leathery**, or **waxy**
- Color can vary **white, yellow, brown, or charred black**
- The skin may have a **shiny or hard texture**, but it's **not moist**
- **No blisters** are usually present the skin is completely destroyed

◊ Pain Level:

- There is **no pain directly at the burn site** because the nerves are destroyed However, the **areas around the burn** (if second-degree) may still be painful

- Full thickness burn
- Dry **waxy**
- Charred **black.**

◊ Escharotomy:

- **A surgical procedure** used to treat **full thickness (third-degree)** both the epidermis and the dermis are destroyed along with sensory **nerves in the dermis.**

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Classification: Internal Use

- An emergency surgical procedure involving **incision through areas** of burnt skin to **release the eschar**, restore **circulation**, and **allow adequate ventilation**. There is **Edema,** swelling and **Compressed vein** So, this surgery to decompress Vein **which we cut in burned tissue.**
    - Eschar is the **thick, dead tissue** that forms over full-thickness (third-degree) burns.

◊ What is the First thing you want to do to care for minor burns First degree, second degree?

- Submerge into **cool water** to decrease the Swelling.
- Don't pop the blister.
- Cover the area with a clean, dry Cloth.
- Remove any Clothing or Jewelry in the burn Location.

◊ What about the client having a chemical burn?

- **Removing all clothing** including work gloves, Shoes or any undergarments that still have chemical.
- How to assess For Fluid resuscitation has been effective?
- Urine **outputs 30 ml** per hour or more.
- Blood pressure 90 systolic or more.
- What Kills the Client with major burns First:
- **Hypovolemic shock** we must maintain that blood pressure with adequate IV Solution.
- Also, the first 24 hrs. after a major burn risk for **high Potassium** because the Potassium will go **from the cell into the body**, we Look for **Peaked T waves** as well as Muscle spasms we must expect hyperkalemia.
- Also Look for **Low Sodium** ↓ 135.

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- **Infection** this patient should put in **neutropenic precautions**.

◊ Neutropenic Precautions (Protective Isolation):

- **Neutropenic precautions** are used to protect immunocompromised patients especially those **with low neutrophil counts** from infection.
    - These patients are highly **vulnerable to bacteria, fungi**, and viruses that wouldn't normally cause illness in healthy individuals.

◊ What You Should Do:

- **Place the patient in a private room** to minimize exposure to infectious agents.
- Ensure **strict hand hygiene** for everyone: staff, visitors, and the patient themselves.
- Use **personal protective equipment (PPE)** such as gloves, masks, and gowns when indicated.
- Provide **daily bathing and oral care**, using a **soft toothbrush**. Avoid flossing if the patient has low platelets, to prevent bleeding.
- Monitor the patient's **temperature daily**. Even a **slight fever** can be an early sign of infection and must be reported immediately.

◊ What to Avoid:

- Do **not allow fresh flowers or potted plants** in the room, as they may carry bacteria in soil or water.
- Avoid **raw or undercooked foods**, such as sushi, unwashed fruits, and rare meats.
- Do **not allow visitors who are sick**, have colds, or have received **recent live vaccinations**.
- Remove any **standing water** from the room, including in humidifiers or flower vases, to prevent microbial growth.

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- Avoid **unnecessary invasive procedures** (like rectal thermometers, catheter insertions), as these can introduce infections.
- NCLEX Tip:
- Always report **any fever**, even if it's low-grade (e.g. 100.4°F or 38°C), as it may be the only early sign of infection in a neutropenic patient.

◊ Potential complications of third-degree burns include:

- During the emergent Phase from **24 to 72hrs** Burn injury causes increase Fluid and electrolyte shifts and decreases intra vascular Volume that's Cause **Hyperkalemia (**Peaked T Wave, Arrhythmia, or heart rhythm disturbances).
- **Dehydration**.
- Edema (excess fluid and swelling in tissues).
- Pneumonia.
- Seriously low blood pressure (hypotension) may lead to shock.
- Severe infection that may **lead to amputation or sepsis.**
- Tachycardia
- Hypoactive Bowel Sound.
- Nausea and vomiting are also **paretic ileus.**
- **Hematocrit level is elevated** due to hemoconcentration caused by **hypovolemia.**
    - Hemoconcentration = **Increased concentration of blood** components, It occurs when **the plasma volume** (the liquid part of blood) decreases, causing **red blood cells and other elements** to become **more concentrated.**
    - For example:

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- **After severe burns**, the body loses a large amount of fluid into the tissues (third spacing) → this leads to **a reduction in plasma volume** → resulting in hemoconcentration.

◊ Management of Burn**:**

- Clients with burns have **increased metabolism** and calorie requirements that must be met for healing.
- The Nurse should **prioritize initial management** priority ABC Airway, Breathing, circulation.
- This Pt High risk for **hypovolemic Shock** so, we must give IV Fluid in the First 24hr as Ringer and saline 9%.
- Assess For **Fluid resuscitation** and assess for urine output 30 per hour. **Blood Pressure 90 Systolic** or more
- First 24hr after burning High risk for **hyperkalemia** because Potassium will go from cell into Blood stream so look for peaked T Wave also muscle spasms.
- **Hyponatremia** is less than 135.
- Treatment under Neutropenic precaution

◊ All burning clients MUST assess:

- **Sever Pain** he should take OPIOD medication.
- **Vocal Changes** as **Hoarseness** this concern finding for inhalation smoke.
- Sign and symptoms of hypovolemia as **tachycardia and hypotension.**

◊ Client at risk for:

- Compartment syndrome
- Hypovolemic shock «fluid shifts.
- Malnutrition.

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- Respiratory Failure, sepsis.
- **After inhalation Injures occur**, Client often rapidly develops, threat **pulmonary edema** as well as **laryngeal edema**, therefore the Client is high risk for **developing Respiratory Failure** and Nurse Should Immediately Prepare for intubation.

◊ After ensuring The Client airway is Secure anticipated Prescription:

- **Administer IV** analgesic.
- cleaning wound
- Administer **Tetanus** immunization.
- insert indwelling **urinary Catheter.**
- Collect blood specimen for **Carboxy-Hemoglobin (**COHB) level (is a stable complex of **carbon monoxide** that forms in red blood cells when **carbon monoxide is inhaled)**.
    - **COHB** should be measured if **carbon monoxide** or **methylene chloride** poisoning is suspected.

◊ Prior to Performing Wound Care:

- Administer IV analgesic.
- Assess For drug allergy.
- Gather sterile supplies.

◊ Early sign of infection Burn:

- Usually change in appearance as **Partial thickness** Turn into full **thickness**.
- Temperature above 40
- Tachycardia
- Tachypnea
- Hypotension

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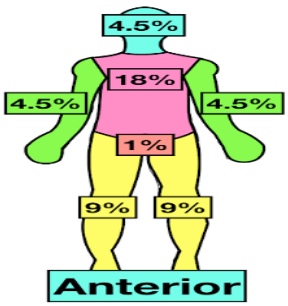
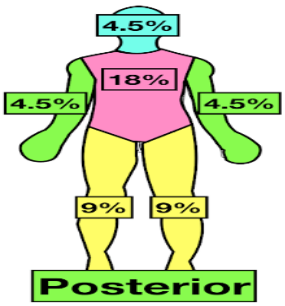
- Hyperglycemia

Rule of Nines for Burns

Body Part	Body Surface Area
Entire Head & Neck	9%
Entire Right Arm	9%
Entire Left Arm	9%
Entire Trunk	36%
Groin	1%
Entire Right Leg	18%
Entire Left Leg	18%





◊ **Simply used:**

- To quickly estimate the **Parentage** of the body that's affected by a burn. It's Called **Total body Surface area (**TBSA)**.**

◊ Reason to use Rule of 9's.

- To **Calculate How much Fluid** resuscitation the client needs.

◊ **Parkland Burn formula:**

- TBSA % * 4 ml * WEIGHT = **Volume needs in the first 24 hrs.**

◊ Fluid Administration Schedule:

- First 8 hours: Give ½ of the total volume
- Next 16 hours: Give the remaining ½
- Timing starts from the time of burn injury, not when the patient arrives at the hospital.
- Posterior Body surface → منطقة الظهر كاملة من الراس الي الرجل
- Torso area in the front: → المنطقة الأمامية صدره وبطنه
- 18% for the front.
- Torso area in the Back. → المنطقة الخلفيه الظهر فقط
- 18%. For the back
- Example
- Client has a full Thickness to the **Posterior body surfaces**, meaning **entire back of the body.**

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- **Back or Posterior area you must Calculate everything in the back:**
- Back of the Head 4.5%
- Back Torso18%
- Back arms 9%
- Right and left leg 18%

➢ **Pressure injuries:**

- **Pressure injuries** are areas of localized skin and tissue damage caused by prolonged pressure, often over bony prominences. Can lead to ischemia, necrosis, and infection.

◊ What are other names for bedsores?

- Pressure injuries.
- Pressure sores.
- Pressure ulcers.
- Pressure wounds.

◊ Risk Factors:

- Bedridden clients.
- Client **with incontinence** that can't keep bowls or urinary.
- **Client with Poor nutrition** he doesn't have Protein to help increases skin durability.
- **Diabetic neuropathy** has a skin breakdown. (a type of **nerve damage** that can occur if you have **diabetes** high blood sugar (glucose) can injure nerves throughout the body).
- **Liver Failure there is low albumin** which **low Protein Inside the blood** that's why we give albumin to **Increase tissue repair.**

◊ Stages of pressure injury:

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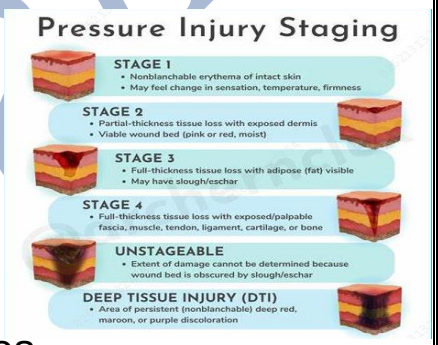
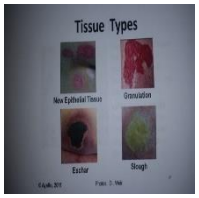
- One layer skin damage:
  - Skin looks **red or pink**, but there **isn't an open wound**.
  - **Skin might feel warmer**, cooler, softer or firmer.
  - Affect out layer the **epidermis**.
  - The skin is still intact but it's **non-blanchable.**
  - It's not broken skin.
- Two layers of skin damage:
  - The Skin is broken there is **open wound**.
  - effects to epidermis and the deeper part of the tissue
  - Red, Pink, and open skin, Shiny.
- Three layers of skin damage:
  - Epidermis, dermis, and hypodermis.
- Four Layers damage:
  - All down to the muscle, tendons, and bones.
  - Usually happens on client's buttocks, Huge Massive wound.
- Unstageable:
  - **Full thickness tissue loss** characterized by **slough** (yellow, tan, gray, green, or brown) and/or **eschar** (tan, brown, or black).
- Both Eschar and Sloughing:
  - Need debridement procedure.


Pressure Injury Staging
STAGE 1
• Nonblanchable erythema of intact skin
• May feel change in sensation, temperature, firmness
STAGE 2
• Partial-thickness tissue loss with exposed dermis
• Viable wound bed (pink or red, moist)
STAGE 3
• Full-thickness tissue loss with adipose (fat) visible
• May have slough/eschar
STAGE 4
• Full-thickness tissue loss with exposed/palpable fascia, muscle, tendon, ligament, cartilage, or bone
UNSTAGEABLE
• Extent of damage cannot be determined because wound bed is obscured by slough/eschar
DEEP TISSUE INJURY (DTI)
• Area of persistent (nonblanchable) deep red, maroon, or purple discoloration



◊ Intervention for Pressure ulcer:

- Turn Client every two hours.
- Give protein and Fluids **Two -Three liters** per day of Fluid.
- Monitor Fluid output.
- Give albumin the Normal is (3.5-5)
- Always monitor Stage, size, Color of the Wound and Assess and document that wound 24 hrs.

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Classification: Internal Use

- Always take pictures and documents.

➢ Cellulitis:

- **Bacterial infection** of your skin and the tissues **beneath your skin**.
- It most commonly affects the lower part of your body, including your **legs, feet and toes**. However, it can occur in any part of your body. It also commonly appears on your **face, arms, hands and fingers**.

◊ Caused by:

- an Inflammation of the Subcutaneous tissue Caused by bacterial infection **staphylococcus aureus** and **Streptococcus.**

◊ Most risk:

- Older adults, People with Diabetes, Immunocompromised patients, Patients with skin breaks or wounds, Obese individuals

◊ Manifestation:

- Pain, Tenderness, Edema (swelling), Warmth, Discoloration (red, purple or slightly darker than your usual skin color) that may look like a rash.
- Fluid-filled blisters.
- Fever, Chills, Fatigue.

◊ Tests for diagnose cellulitis:

- Blood test. A blood test will confirm whether the cellulitis infection has spread to your blood.
- Skin test. A skin test will identify the **type of bacteria responsible** for your cellulitis, which helps your healthcare provider prescribe the most appropriate antibiotic.
- Bacterial culture. A bacterial culture will identify the type of bacteria responsible for your cellulitis.

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◊ Nursing interventions:

- Administer antibiotic.
- Perform frequent linen change.
- Mark the date the area inflammation.

➢ **Poison ivy:**

- Allergic reaction to **oily resin.** This oil is in the leaves, stems and roots of poison ivy.
- Can Cause a Contact dermatitis **rash to peoples** who are sensitive to the **oily resin** found on the **leaves, Stems, Roots of Plant.**
- Rash develops 12-48 after exposure.

◊ What are the symptoms of poison ivy rash?

- Poison ivy symptoms almost always include:
- Itchy skin rash.
- Redness and swelling.
- Blisters.
- Intervention
- **Immediate Action:**
  - **Wash the skin immediately** with soap and cool water to remove any remaining oil.
  - Do **not scratch or break the blisters**, as this can lead to infection.
- **Relief and Treatment:**
  - Apply **cool compresses** to soothe itching and reduce inflammation.
  - Use **topical corticosteroids**, like **hydrocortisone cream**, to calm the rash.

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- Take **oral antihistamines** like **diphenhydramine (Benadryl)** to relieve itching, especially at night.
- In **severe cases**, **oral corticosteroids** may be prescribed (e.g., prednisone).

◊ NCLEX Tips:

- **Teach prevention**:
- Wear **long sleeves and pants** when in wooded areas.
- Avoid areas where poison ivy is known to grow.
- Teach patients to **identify and recognize** poison ivy plants.

- Always emphasize **early washing** to reduce the severity of the reaction.

➢ Steven Johnson syndrome:

- SJS is a **rare but serious** disorder affecting the **skin and mucous membranes**, typically triggered by **medications or infections**.
- It presents with **blistering**, **skin sloughing**, and **painful mucosal lesions**.
- Considered a **milder form** of **Toxic Epidermal Necrolysis (TEN).**

◊ Causes:

- Mostly drug-related or triggered by infections:
- 1. Medications (most common cause):
  - Sulfonamide antibiotics
  - Antiepileptics (phenytoin, carbamazepine, lamotrigine)
  - NSAIDs
  - Allopurinol
    - Penicillins and cephalosporins
- 2. Infections:

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- Mycoplasma pneumoniae
- Herpes Simplex Virus (HSV)

- 3. Other causes:
  - Vaccinations (rare)
  - Idiopathic (unknown cause in some cases)

◊ Risk Factors:

- HIV infection (100x more risk)
- Malignancies (e.g., lymphoma)
- Immunosuppression

◊ Clinical Manifestations:

- Prodromal Phase (1–3 days):
  - Fever
  - Malaise
  - Sore throat
  - Cough
  - Eye discomfort

◊ Skin & Mucosal Symptoms:

- Painful, red or purple macules and patches
- Target-like lesions (not always)
- Skin blistering and peeling
- **Mucosal involvement:**
  - Oral ulcers
  - Eye irritation, conjunctivitis
  - Genital ulcers

◊ Complications:

- Secondary infection
  - Sepsis

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- Dehydration
- Ocular damage/blindness
- Respiratory distress
- Organ failure.

➢ Toxic epidermal Necrolysis (TEN):

- A rare, **life-threatening skin disorder** characterized by **widespread** erythema, necrosis, and bullous detachment of the epidermis and mucous membranes.
- It is considered the **most severe form of Stevens-Johnson Syndrome** (SJS), often involving more than 30% of body surface area.

◊ Most commonly caused by severe drug reactions, especially:

- **Antibiotics (**e.g., sulfonamides)
- Anticonvulsants (e.g., phenytoin, carbamazepine)
- NSAIDs
- Allopurinol
- Sometimes follows infections or has an idiopathic cause.

◊ Priority Nursing Care (NCLEX Focus):

- Immediate **discontinuation** of the causative drug
- Transfer to **ICU or burn unit**
- **Supportive care:**
  - IV fluids and electrolytes
  - Pain control
  - Wound care (like burn patients)
  - Nutritional support
  - **Monitor for infections**

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- **Ophthalmology consults** if eye involvement
- **Immunosuppressants** (e.g., IVIG, corticosteroids, cyclosporine) – controversial, used in selected cases

◊ Complications:

- Sepsis
- Multi-organ failure
- Electrolyte imbalance
- Blindness (due to ocular involvement)
- Scarring and skin discoloration.

◊ Nursing Considerations:

- Use **aseptic technique** with dressing changes
- Prevent **pressure ulcers** and **infection**
- Provide **emotional support** due to disfigurement and trauma
- Monitor **vitals**, **I/O**, and **signs of sepsis**
- Apply **lubricating eye drops** if eyes are affected
- Other treatments for TEN may include:
- **Immune globulin:** You receive immune globulin through an IV. It's a **sterile liquid made** from donor plasma (the liquid part of the blood). It contains antibodies or substances that help your body fight infections.
- **Immunosuppressants drug.**
- **Plasmapheresis**: This procedure removes blood from your body and separates the plasma from blood cells. A machine removes substances causing a **harmful immune response** from the plasma. Then, the machine returns the "clean" blood or a plasma substitute to your body.

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➢ Skin cancer:

- **Skin cancer is the abnormal and uncontrolled growth of skin cells.**
- It often happens due to long-term **exposure to ultraviolet (UV) radiation**, either from sunlight or tanning beds.

◊ Causes:

- Prolonged exposure to UV rays.
- Use of tanning beds.
- Weak immune system.
- Genetic mutations.

◊ Risk Factors:

- Family history of skin cancer.
- Immunosuppression (e.g., HIV, cancer patients, organ transplant).
- Older age.
- History of severe sunburns.
- Outdoor occupations with frequent sun exposure.

◊ Symptoms:

- **A new mole or growth** that changes in size, shape, or color.
- A mole that bleeds, itches, or becomes painful.
- Flat, pink/red or brown patches on the skin.
- Areas of skin that look like scars or become shiny and tight.
- Non-healing wounds or ulcers on the skin.

◊ Treatment:

- Surgical removal of the tumor.
- Topical chemotherapy
- Radiation therapy.
- Immunotherapy or targeted therapy (especially for melanoma).

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◊ Nursing Interventions & Health Education:

- **Educate about sun protection:**
  - Use broad-spectrum sunscreen
  - Wear protective clothing, hats, and sunglasses.
  - Avoid sun exposure during peak hours (10 a.m. – 4 p.m.).
  - Encourage monthly self-skin checks.
  - Report any suspicious skin changes early.
  - Support patients emotionally, especially those undergoing biopsies or surgery.

◊ Key NCLEX Notes:

- A changing mole is a serious warning sign.
- Melanoma is the most life-threatening skin cancer.
- Prevention and early detection are the most important strategies.

➢ **Psoriasis**:

- Psoriasis is a **chronic autoimmune skin disorder** that causes **rapid skin cell turnover**, leading to the buildup of **thick, red patches** covered with **white or silvery scales.**

◊ Key Characteristics:

- Raised red lesions (plaques)
- Silvery-white scales
- Commonly found on elbows, knees, scalp, lower back
- Itching, burning, or pain may occur
- Can flare up and go into remission

◊ The goal of Therapy:

- Slow down rapid skin cell turnover
- Heal skin lesions

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- Control symptoms and reduce flare-ups

◊ Disease management

- **Ultraviolet light exposure** (sun light, Phototherapies help slow epidermal.
- **Topical Therapy** as corticosteroids and moisture
- Systemic Medication **methotrexate**
- Avoid Trigger as stress, trauma, and infection.

◊ patient Education & Nursing Considerations:

- Encourage **stress-reduction techniques**
- Avoid **skin injury** (e.g., no scratching, use soft clothing)
- Use **gentle soaps and lukewarm water**
- Monitor for **side effects of systemic drugs**
- Educate patient about **non-contagious nature** of psoriasis.

◊ NCLEX Key Point:

- Psoriasis is **not contagious**
- Focus is on **symptom control** and **trigger avoidance**
- **Methotrexate** requires monitoring of **liver function** and **blood counts**
- **Phototherapy** may be helpful but needs to be **supervise**

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9-Oncology and Hematology

➢ Anemia:

- Deficiency of **healthy Red blood cells in the blood.**
- **Red blood cells (RBCs)** are essential to **carry oxygen to all parts of the body.**

◊ Types of Anemia:

- **Iron-Deficiency** Anemia
- **Pernicious Anemia** (Vitamin B12 Deficiency).
- Folic Acid Deficiency Anemia.
- Aplastic Anemia
- Sickle Cell Anemia.
- **Megaloblastic Anemia** (umbrella term for B12 & folate deficiencies)

➢ Megaloblastic anemia:

- **a form of macrocytic anemia**.
- Condition in which your body has **overly large red blood cells and not enough normal red blood cells**.
    - It results in large, immature red blood cells (megaloblasts) **in the bone marrow and peripheral blood.**

⇨ Primary Causes:

- Vitamin B12 deficiency
- Folic Acid deficiency.

⇨ Sign and symptoms **of B12 Deficiency**:

- Fatigue, pallor
- GI upset
- Neurologic symptoms: paresthesia, confusion, poor balance,
- Memory loss.
- Ataxia (unsteady gait).

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◊ Nursing Interventions **Vitamin B12** Deficiency:

- Lifelong IM B12 injections if intrinsic factor is absent
- High B12 diet (meat, dairy, eggs, shellfish)
- Monitor Neuro Status
- Ensure safety (fall risk).

⇨ Sign and symptoms of **Folic Acid deficiency:**

- Fatigue, pallor
- GI upset
- Neurologic symptoms: paresthesia, confusion, poor balance.

◊ Nursing Interventions Folic Acid Deficiency:

- Administer oral folic acid supplements
- Encourage folate-rich foods (leafy greens, citrus, beans)
- Especially important in pregnancy
    - The highest risk:
        - Vegan diet.

➢ **A Plastic anemia:**

- Condition that occurs when your **body stops producing enough new blood cells including:**
    - Red blood cells → carry oxygen
    - White blood cells → fight infections
    - Platelets → help with blood clotting

◊ Resulting in pancytopenia:

- Deficiency of **WBCs**, **RBCs,** and **Platelet.**

◊ NCLEX Nursing Interventions:

◊ **Infection Prevention:**

- Strict **hand hygiene**

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- Reverse isolation if needed
- No fresh flowers, raw food
- Monitor temperature closely
- Report fevers immediately

◊ **Bleeding Precautions:**

- Avoid IM injections, rectal temps
- Use soft toothbrush, electric razor
- Monitor for signs of bleeding (bruises, blood in urine/stool)
- Platelet transfusions if needed

◊ **Fatigue Management:**

- Encourage rest
- Space out activities

⇨ Medical Treatment:

- **Immunosuppressive therapy** (e.g., antithymocyte globulin, cyclosporine)
- Bone marrow/stem cell transplant (potential cure)
- Transfusions (RBCs, platelets)
- Infection control + antibiotics if febrile

⇨ Diagnosed by:

- **Bone marrow aspiration** and **bone marrow biopsy**.
- Providers do these procedures to obtain **bone marrow tissue** that pathologists examine under a microscope.

➢ Sickle cell Anemia:

- One of the groups of **inherited disorders** known as **sickle cell disease** affects the shape of **red blood cells**, which carry **oxygen** to all **parts of the body**.

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- **Red blood cells** are usually **round and flexible**, so they move easily through blood vessels.
- During a Vaso occlusive crisis (occlusion of a blood vessel**) large number of RBCs clump together** and obstruct small blood vessels causing **ischemia and acute pain.**
- **In sickle cell anemia**, some red blood cells are shaped like **sickles or crescent moons.** These **sickle cells** also become **rigid and sticky**, which can **slow or block blood flow.**

⇨ Cause:

- **Sever pain** that's occurs due to **impaired capillary blood flow.**
- **Also, ischemia**, may lead to irreversible tissue damage such (**MI, STROKE, Limb Necrosis**) because could not get enough blood.

⇨ Sickle cell disease finding require immediate follow up:

- **Sever pain** which can be caused by **ischemia and infection.**
- **Tachycardia** which is associated with **dehydration**
- **Concentrated urine** (amber colored urine)

⇨ Manifestation:

- Fever, Bone pain
- Tachycardia
- Leukocytosis (High **white blood cell** count)

⇨ Indicate intervention:

- **Administer IV fluid.**
- Administer **OPIOD medication.**
- Supplement **Oxygen** therapy and monitoring hemoglobin level
- Close monitor if **there is no bowel movement for more two days.**

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Classification: Internal Use

➢ Polycythemia Vera:

- **a blood disorder** that causes your body to **produce too many red blood cells.**
- **Too many red blood cells** can make your blood thick and sluggish and increase your risk of **blood clots** and **complications such as heart attacks and stroke.**
- **The lab value** you will find increase **hemoglobin and hematocrit.**

⇨ Signs & Symptoms:

- Headache, dizziness
- Blurred vision
- Ruddy complexion (facial redness)
- Pruritus (itching), especially after a warm shower
- Fatigue
- High BP
- Enlarged spleen (splenomegaly)
- Thrombosis or bleeding complications

⇨ Treatment Goals:

- Reduce blood thickness (viscosity)
- Prevent blood clots.

⇨ Teach:

- Elevate legs and feet while sitting.
- Wearing supportive socks
- Increase fluid intake.
- Report any sign of DVT.

⇨ Common Interventions:

- Phlebotomy (remove blood regularly)
- Low-dose aspirin (prevent clots)

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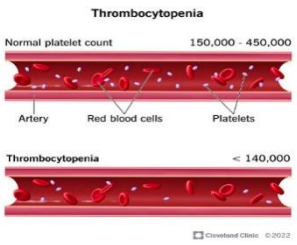
- Hydration (keep blood flowing)
- Avoid iron supplements (can worsen conditions).

➢ Platelet Destruction (Thrombocytopenia):

- Most Common Diseases Associated with Platelet Destruction

◊ 1-Thrombocytopenia:

- **Occurs when your bone marrow** doesn't make enough platelets.
- **Platelets** are blood cells that form **blood clots to help stop bleeding**. If you have thrombocytopenia, you may bleed a lot, and the bleeding may be hard to stop.
- A decrease in platelets can cause **easy bruises, bleeding gums**, and internal bleeding.



⇨ Different types of thrombocytopenia include:

- **Immune** thrombocytopenia.
- **Thrombotic** thrombocytopenic.
- **H**emolytic-uremic syndrome.
- **Disseminated** intravascular coagulation.

◊ Types of Thrombocytopenia – NCLEX Review**:**

- **Thrombocytopenia** = low platelet count (typically <150,000/mm³)
- Risk: **Bleeding, bruising, petechiae, hemorrhage**

◊ Immune Thrombocytopenic Purpura (ITP):

- **Cause:** Autoimmune destruction of platelets
- Often follows **viral infection**, especially in children
- Can be acute (kids) or chronic (adults)

⇨ Key S/S:

- Petechiae, bruising

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- Bleeding gums, nosebleeds

⇨ NCLEX Interventions:

- Monitor for bleeding
- Avoid IM injections, NSAIDs
- **Steroids** to suppress immune response
- May need **IVIG or splenectomy**

⇨ 2. Thrombotic Thrombocytopenic Purpura (TTP):

- **Cause:** Small blood clots (thrombi) form in vessels, using up platelets Can be **life-threatening**
- Associated with **autoimmune disorders, pregnancy, infection**

⇨ Key S/S (classic pentad):

- Thrombocytopenia
- Hemolytic anemia
- Neurologic symptoms (confusion, headache)
- Renal dysfunction
- Fever

⇨ NCLEX Interventions:

- **Plasmapheresis** (main treatment)
- Avoid platelet transfusions unless life-threatening
- Monitor neuro and renal function

◊ 3-Hemolytic Uremic Syndrome (HUS)

◊ **Cause:** Often follows **E. coli infection**, especially in children

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- **Toxin damages blood vessels** → platelet clumping, hemolysis, and kidney injury

⇨ **Key S/S:**

- Bloody diarrhea
- Low platelets, anemia
- **Acute kidney injury (AKI)**
- Oliguria/anuria
- Lethargy, irritability

⇨ NCLEX Interventions:

- Supportive care (fluids, dialysis if needed)
- Monitor kidney function
- Do **not** give antibiotics for E. coli can worsen the condition.

⇨ Characterized by:

- RBCs Hemolysis. (low red blood cells)
- Acute kidney injury.
- Thrombocytopenia (Petechia, purpura), **priority**

⇨ Avoid:

- Bananas, RICE, applesauce, toast.

⇨ 4-Disseminated Intravascular Coagulation (DIC):

◊ **Cause:** Widespread clotting in small vessels → uses up clotting factors → leads to bleeding

- Triggered by sepsis, trauma, obstetric complications, cancer

⇨ Key S/S:

- Bleeding from IV sites, gums, wounds

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- Petechiae, bruising
- Organ failure due to clotting

⇨ NCLEX Interventions:

- **Treat underlying cause** (e.g., infection)
- Administer blood products (platelets, FFP, cryoprecipitate)
- Monitor for bleeding and clotting
- Avoid unnecessary invasive procedures.

➢ Colorectal cancer:

- Colon rectal cancer is a malignant tumor that originates in the colon or rectum (part of the large intestine).

◊ Risk Factors:

- Age > 45 years (start of routine screening)
- Family history of colorectal cancer or polyps
- History of inflammatory bowel disease (Crohn's, ulcerative colitis)
- Diet high in red or processed meat, low in fiber
- Obesity, sedentary lifestyle
- Smoking and alcohol use

◊ Signs & Symptoms:

- Anemia (especially iron-deficiency) due to chronic blood loss
- Occult GI bleeding (hidden blood in stool)
- Unexplained weight loss
- Fatigue
- Change in bowel habits (e.g., constipation, diarrhea, narrow stools)
- Abdominal discomfort or cramping

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◊ Screening & Diagnosis:

- Start colonoscopy at age 45 and repeat every 10 years if normal (Earlier and more frequent if high risk)
- Fecal occult blood test (FOBT) or FIT test (yearly)
- Sigmoidoscopy, CT colonography, or biopsy if needed

◊ Prevention:

- Lifestyle Modifications:
- Stop smoking
- Avoid alcohol
- Increase fiber intake
- Limit red and processed meats
- Exercise regularly
- Maintain healthy weight

➢ **Prostatic cancer:**

- **Prostate cancer** is a cancer that occurs in prostates.
- The prostate is a small **gland** in males that produces the seminal fluid that nourishes and transports sperm.

⇨ High factor:

- **Black men** more than other higher incident of prostate cancer
- **Age more than 50 years.**

⇨ Prostate cancer that's more advanced, may cause signs and symptoms such as:

- Trouble urinating.
- Decreased force in the stream of urine.
- Blood in the urine.
- Blood in the semen.

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Classification: Internal Use

- Bone pain. Losing weight without trying.
- Erectile dysfunction.

➢ Lymphoma:

- **"Lymphoma"** is the general term **for cancer** in your **lymphatic system** (the network of tissues, vessels and organs) that help your body **fight infection.**
- It's considered a **blood cancer** "It starts in white blood cells (lymphocytes) in the lymphatic system, which is part of the immune and circulatory systems."

⇨ There are two main lymphoma categories:

- **Hodgkin** lymphoma.
- **Non-**Hodgkin lymphoma.

⇨ Risk factors for development:

- Viral bacterial infection (**Epstein Barr virus**, Herpes virus)
- Chemical exposure.
- **Immunosuppressed** (means **Having a weakened immune system** to protect the body from pathogens, such as **bacteria, viruses**, and other infectious microorganisms as patient **HIV** or **chemotherapy).**

⇨ Symptoms common to Hodgkin lymphoma and non-Hodgkin lymphoma can include:

- **Painless swelling** of one or more lymph nodes in your neck, armpits or groin that don't go away within a few weeks.
- **Persistent fatigue,** when you feel very tired day after day even after getting enough sleep.
- **Fever stays above 103 degrees** for more than two days.

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- **Shortness of breath** (dyspnea), when you feel as if you can't get enough air in your lungs.
- **Unexplained weight loss**, when you've lost 10% of your total body weight over six months without dieting or exercise.

⇨ Treatment:

- External beam radiation therapy.
- Chemotherapy**.**

⇨ The main differences between lymphoma and Hodgkin's lymphoma:

- **Cell Type:** Hodgkin's lymphoma is marked by the presence of **Reed-Sternberg lymphocytes**.
- **Non-Hodgkin's lymphoma** does not have these cells.
- **Classification:** If Reed-Sternberg cells are seen under a microscope, it is classified as **Hodgkin's**; otherwise, it is non-Hodgkin's.
- **Frequency**: Non-Hodgkin's lymphoma is more common than Hodgkin's lymphoma.

⇨ For diagnosis:

- **Biopsy:** Surgically removing an affected lymph node to test for abnormal cells (**Reed-Sternberg cells**).

⇨ What causes lymphoma?

- **Lymphoma happens** when the white blood cells in your lymphatic system change into **rapidly growing cancer** cells that don't die.
- But research suggests the following conditions or issues may increase your **risk of developing lymphoma:**
- You have or **have had viruses including HIV (human immunodeficiency virus), Epstein-Barr.**
- You have a family history of lymphoma.

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- **Your immune system is weakened by other conditions or medical treatments**. For example, people who have organ transplants take immunosuppressant medication to keep their bodies from rejecting the transplanted organ.

⇨ Risk for:

- **Tumor lysis syndrome** and **superior vena cava syndrome**

◊ **Tumor lysis syndrome:**

- Group of potentially life-threatening conditions that may happen within hours **after cancer treatment**.

⇨ How does tumor lysis syndrome affect my body?

- Tumor lysis happens when cancer cells**, under pressure from chemotherapy and other cancer treatment,** fall apart and flood your bloodstream with chemicals and toxins faster than your body can get rid of them.
- Tumor lysis syndrome is a group of conditions that affect your **heart, kidneys and muscles.**

⇨ Result in:

- Hyperkalemia
- Hyperphosphatemia
- Hyperuricemia.
- **Hypocalcemia**

⇨ The most concern lab:

- **Hypocalcemia** which can result **in seizure and A cardiac dysrhythmia**.
- **Elevate creatinine (kidney injury).**

⇨ Intervention:

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- Healthcare providers **treat tumor lysis syndrome** with **intravenous hydration and decreasing uric acid production with allopurinol.**
- Implement seizure precautions.
- Administer hyperuricemia drug as allopurinol.
- Continuous **cardiac monitor**
- Monitor fluid balance
- Administer **dextrose and insulin** for hyperkalemia.

➢ **Warning signs of cancer:**

- Change in bowel or bladder habits.
- Sores do not heal.
- Unusual bleeding is painless hematoma.
- Lump in the breast or elsewhere
- Difficult swallow
- Change in wart or mole.
- Nagging cough or hoarseness.

⇨ Risk factor of oral cancer:

- Chronic alcohol / Tobacco.
- **Gingivitis** and **poor hygiene**
- Ultraviolet light exposure to the lips (sun exposure)
- Infection with **Human papillomavirus.**

⇨ Risk factor for cervical cancer:

- Persistent human papilloma virus
- Having multiple sexual partners
- Smoking tobacco
- Infected with other STI as gonorrhea and chlamydia.

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Classification: Internal Use

➢ Blood transfusion complication:

⇨ Blood has several components, including:

- **Red cells**: carry oxygen and help remove waste products.
- **White cells**: help your body fight infections.
- **Plasma:** is the liquid part of your blood.
- **Platelets:** help your blood clot properly

⇨ **1-Transfusion associated circulator overload:**

- **Transfusion blood too quickly** or **multiple units.**
- **Condition** that causes **fluid to build up in your lungs** and other parts of your body after a blood transfusion.
- **It happens when your body** can't manage the amount of extra fluid added by the transfusion. It can make it hard to breathe, cause severe swelling and increase your blood pressure.

⇨ Manifestations:

- Jagluar vein distention
- Hypertension and bound pulse
- Tachycardia, Edema, and dyspnea.

⇨ Higher risk for TACO:

- 60 years old or older.
- Have a history of cardiovascular disease, like heart failure or a heart attack (myocardial infarction).
- Have a history of kidney disease.
- Have COPD (chronic obstructive pulmonary disease).

⇨ Management:

- **Place clients** in high follower positions
- **Request** for a prescription of **diuretic**
- Blood, and **urine sample**

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- **Monitor** intake and output
- Daily weighs and give oxygen.

⇨ **2- Anaphylactic transfusion reaction:**

- Occur within 15 minutes.

⇨ Manifestations:

- Angioedema
- skin flush
- Fever
- Hypertension and tachycardia
- **No chills and no dark urine**

⇨ Management:

- Administer Po acetaminophen to reduce fever.
- Administer **Epinephrine.**
- If there is blood reaction, stop it, give saline, check vital signs, and inform HCP.

⇨ **3- Acute Hemolytic transfusion reaction:**

- Caused by transfusion of blood **ABO incompatibility.**
- **A serious complication** that can occur after a blood transfusion occurs when **incompatible blood** types are transfused leading to the **destruction of red blood cells**. It's **crucial to match blood types carefully to prevent such reactions during transfusions**.

⇨ Manifestations:

- Fever and chills
- Flank pain
- Dark red urine

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- Tachycardia and hypotension

⇨ Management:

- Act quickly decreased the risk of **disseminated intravascular coagulation**.

⇨ Nursing Education for blood transfusion:

- Should initiate blood within **30 minutes** from receiving it if you will delay you have to return it.
- Not allow to verify **UAP only RN.**
- If there is blood reaction, stop it, give saline, check vital signs, and inform HCP.
- **Ensure proper product to client identification.**

⇨ **4-Sepsis / Bacterial Contamination:**

- Cause: Contaminated blood product
- Onset: Rapid or delayed

⇨ S/S:

- Fever, chills, Hypotension, Shock

⇨ NCLEX Intervention:

- Stop transfusion
- administer IV antibiotics
- Supportive care for shock.

⇨ **5-Febrile Non-Hemolytic Reaction:**

- Cause: **Sensitivity to donor WBCs** Most common reaction

⇨ S/S:

- Fever, chills
- Headache
- Flushing, mild discomfort

⇨ NCLEX Intervention:

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- Stop transfusion, notify provider
- Antipyretics (e.g., acetaminophen)
- May restart transfusion with order
- Prevention: Use leukocyte-reduced blood products

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Maternal Health

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Classification: Internal Use

➢ Pregnant women:

◊ What are the signs of pregnancy?

⇨ Presumptive signs:

- These are **subjective signs** reported **by the woman.** They suggest pregnancy but could be due to other causes.

⇨ Probable signs:

- These are **objective signs** observed by a **healthcare provider**. They are more reliable than presumptive signs **but still not conclusive.**

⇨ Definite Positive signs:

- These confirm pregnancy with certainty.

◊ First, Presumptive signs:

- Its **self-reported signs,** most of the time clients come with **amenorrhea** (absence of menstruation) may be **nausea, vomiting** and movements inside the stomach feelings but since those signs are **self-reported**, it doesn't mean that the clients are for sure pregnant maybe missed their period, or maybe from food poisons.

◊ Second, Probable signs:

- This more confirms signs and **there are three categories.**
  - Chadwick's sign: "First sign" They see purple or **discoloration of the cervix.**
  - Goodell sign 'Second sign' This is where the **cervical gets soft** it's **around 6-8 weeks** of gestation.
  - Hagar sign: "third sign" **Softening at the bottom of the uterus** just above the **cervix** it's around **6-12 weeks of gestation.**
  - Other possible signs **Positive pregnancy test** Human chorionic gonadotropin (HCG) elevated levels means pregnant.

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- Note:

- **There are some exceptions** (HCG) elevated:
  - It can mean **Gestational trophoblastic disease** (a rare condition where **abnormal cells grow** in the uterus after **conception**). As example **Molar pregnancy** (is one of a few different conditions that are called **gestational trophoblastic disease** (GTD) these rare conditions happen when a pregnancy **does not develop normally** from the beginning.

◊ **Third, Positive pregnancy or positive diagnostic test?**

- **Fetal heart rate testing** by Doppler device at approximately from **10 to 12 weeks.**
- **Ultrasound** there is visualization of fetus.
- **Fetal movement** that is palpated or observed by HCP.
- **X-ray** shows a small fetus on the screen.

➢ **Naegele's rule:**

- That's called **Expected Date of Birth** to know you must follow these rules:
  - First, asking the client **first day of the last menstrual period.**
  - Second, Minus **three months**
  - Third, Add **seven** days.

⇨ **Example:**

- The client has missed her period and thinks they are pregnant they don't have a positive pregnancy test, but they don't know their exactly their week or when their expected date of birth.
- Ask when was the first day of the last menstrual cycle.
- Let's say June 25.

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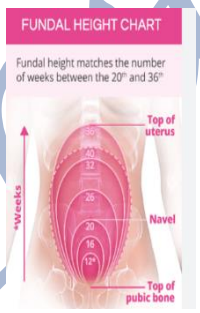
- Minus 3-months will be 25 March
- And then add 7 days April first one.

- Client reporting her **last menstrual period January1st** and end on January 5th she had unprotected sex on January 15th and some spotting on Jan 22nd.'
- The first day of last period January 1st
- Then minus 3-month October first
- Then add 7days Oct 8.


FUNDAL HEIGHT CHART
Fundal height matches the number of weeks between the 20th and 36th
Top of uterus
Weeks
Navel
Top of pubic bone

➢ **Let's talk about Expected Uterine Growth and Fundal height along with weight gain:**

◊ **Fundal height:**

- The distance between **pubic bone** and the **top of the uterus (**Funds**).**

◊ **Funds:**

- **The top part of the uterus** is not palpated or palpable **around week 12** it can be felt above the **symphysis pubis.**

◊ Note:

- The funds height in around **12 weeks** starts to grow above symphysis pubis.
- The funds height in around **16 weeks** is about halfway between **symphysis pubis** and the **umbilicus** basically between pelvic bone and belly button.

- The funds height in around **20 weeks** should be on the umbilical or basically the belly button.
- And should be the **same centimeters** as the **weeks of gestation** plus or minus two weeks.

⇨ **Example:**

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- If their unconscious women after the accident and you can't know how many months the pregnant women, she is?
- Simply measure the **fundal height** if the fundal height is 30cm, then it must be 30 weeks plus or less two.
- **If she is 24 weeks pregnant**, her number will be approximately 24 centimeters plus or less two.

◊ **Second, the normal weight requirements during pregnancy:**

- The total **weight gain on 3 pregnant trimesters** should be **28 pounds**, plus or minus **three pounds.**

⇨ In the first trimester:

- Pregnancy gains about **one pound each month**, so about three pounds in **three months.**

⇨ Second and third trimester:

- Weight gain comes much faster, around **one pound** per week starting at **around 12 weeks.**

⇨ **The Rule of thumb:**

- Total weeks – 9 = weight gain.

➢ **Third, GTPAL assessment:**

- Helps to quickly assess used to **evaluate a woman's complete obstetric history.**
- **The GTPAL** system, which stands for **Gravida (G),** Term (T), Preterm (P), Abortions (A), and Living children (L).

⇨ **G→ Gravida:**

- The **number of times a woman** has ever **been pregnant.**
- It just must be a **Positive Pregnancy.**

♦ Nulligravida means:

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- Zero pregnancy

♦ Prime gravida means.

- First pregnancy

♦ Multigravida:

- When a client has many or multi pregnancy.

⇨ **T→ Term births:**

- Number of births **after 37 weeks** and over **its full term**
- If the client delivered **for under 37** weeks is **not a full-term birth.**

♦ **P→ Preterm births**:

- This is the number of births between 20 to 37 weeks.

⇨ **A→**

- Abortion or miscarriage.

⇨ L→

- Living children or live birth.

⇨ **Example:**

♦ Client's being seen in the pregnancy Clinic For a **new Pregnancy test**. Last year she **had spontaneous abortion** at 3 months gestation.

○ G2, T0, P0 A1, L0

♦ G2/T1/P0/A1/L1

- Pregnant twice, delivered full term, preterm zero, Abortion, Living one.

◊ **How often do Clients Come in for that Prenatal Care?**

- Once **Per month** till around the **28 weeks**.
- **After 28 Weeks** Clients are encouraged come **every two weeks** till **36 Weeks**.
- Then every single **week.**

⇨ Note:

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- Anything over **40 weeks' gestation** can be very damaging to the uterus.
- Anything **under 37 Weeks** is Consider Preterm Labor they often need to be taken to **the NICU.**

⇨ REMEMBER:

- For **Pregnant woman** high **Protein Snacks right upon Waking** is the best.
- **Small Frequents meals** that are low fat and high Protein and simple carbs.
- **Drink Fluid** between meals 30 minutes before or 30 minutes after.

➢ **Discomforts of Pregnancy:**

◊ **First, In the morning maybe feel Hyperemesis= Hyperemesis gravidarum:**

- This is **Persistent Nausea** and Vomiting Past **12 weak** it results in Considerable **weight loss around 5%** of Pre-Pregnancy weight.

⇨ There is a big Safety in this phase:

- Regarding **fluids electrolyte imbalance and malnutrition,** we need to give her nutrients.

⇨ Sign and symptoms of electrolyte imbalance:

- Excessive vomiting, which leads to **dehydration,** then leads to electrolyte imbalances specifically **hypokalemia.**
- **Urine analysis** will reveal **Ketonuria** Means **Ketones in urine.**
- **High specific gravity** that's very concentrated urine.
- We must give IV fluids to rehydrate.

⇨ **2-Heart burn:**

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- Due to increase of **progesterone** and even **uterine enlargement** inside the abdomen

⇨ Education for Heart bum:

- Eat small, frequent meals, around six meals per day.
- Eliminate Fried and even spicy Foods.
- Elevate the head of the bed and using Pillows.
- Avoid laying down immediately after a meal.
- No caffeine, No Peppermint.

⇨ **3-Back Pain:**

- **Back Pain (During Pregnancy):**
- **Why does it happen?**
- As the **uterus grows** and the **baby gets bigger**, it puts **more pressure on the lower back muscles**.
- This causes **back pain**, which is common during pregnancy.
- What should we do to reduce it?
- **1. Pelvic Tilt Exercises:**
- We teach the pregnant woman **Pelvic Tilt Exercises** to:
- Strengthen the **abdominal wall** and **lower back muscles**.
- Relieve pain and improve posture.
- How to do it (simple explanation):
- While lying on her back or standing,
- She pulls her belly inward and gently tilts her pelvis upward,
- Hold for 5 seconds and repeat several times daily.
- 2. During Contractions (in Labor):
- ✅ **What do we do for back pain during labor?**

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- Apply **Counter Pressure** to the **lower back**, specifically the **sacrum area**.
- This helps relieve pressure from the baby's head.
- It can be done **every 30 to 60 minutes**.
- Best if done while sitting on a **birth ball** for comfort and movement.

➢ 4-Constipation:

- Increased **progesterone Levels and iron supplementation** Lead to decreased **GI mobility**.

⇨ You must teach him:

- **Avoid Dairy products for** Two hrs. Before **iron supplement** and one hour after.
- **Avoid Laxatives Stool Softeners because may lead to dehydration,** Electrolyte imbalance. **(Some laxatives can cause you to become dehydrated and imbalance your electrolytes**.
    - This is why it's so important to be sure that you're taking the right laxative and that you're taking it for the right amount of time).
- **Avoid** Caffeine.

⇨ Treatment for constipation to pregnancy women:

- Increase Fiber « Fruits Vegetables ».
- Fluid 10-12 cups daily.
- Moderate exercise.

➢ 5-Intrahepatic Cholestasis:

- **Cholestasis** of pregnancy is **a liver condition that** causes severe itching late in pregnancy.

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- It's also known as **intrahepatic cholestasis of pregnancy** (ICP) or obstetric cholestasis.
- **Your liver helps break down** fats during digestion.
    - Increased levels of **estrogen and progesterone** during pregnancy affect your liver's ability to **transport Bile**. This means your **Bile doesn't move through your body,** causing it to **build up in your liver** and enter your bloodstream. **Bile** entering your blood can make you feel **extremely itching.**

⇨ What are the symptoms of cholestasis of pregnancy?

- itching on hands and feet but worsens at night but **No RASH.**

⇨ How is cholestasis of pregnancy diagnosed?

- Measure the **level of Bile acids** in your bloodstream using a serum **Bile acid test.**

◊ **6- Urinary tract infection (UTI):**

- an infection in your urinary system that occurs during pregnancy.

⇨ What causes UTI during pregnancy?

- The same organism that causes **UTIs in non-pregnant people** is the most common cause of UTI during pregnancy: **Escherichia coli** (E. coli). It causes 80% to 90% of UTIs during pregnancy.

⇨ Symptoms:

- Urinary Frequency
- Burning, foul smelling.
- Pyelonephritis «Kidney infections»
- **Report fever**, Pain in the lower back or flank pain all these Can Increase **risks of preterm labor.**

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➢ **Pregnancy WOMENs are High risks for:**

➢ **Pregnancy has a huge risk for:**

◊ **DVT:**

- **Deep vein thrombosis** is a blood clot in a vein located deep within your body, usually in your leg. **So**, any **Calf pain and cramping** one side or unilateral swelling we must report.

⇨ If the Client has DVT we must teach him:

- **Never** message the leg
- Elevate the leg to make sure that the swilling goes down.
- **Don't Put Pillows** under the Knee.
- Teach Client do Calf exercises Known as **flexing toes.**
- **Avoid Crossing legs** or even sitting too long.
- Use leg compresses, like **Socks or TED Hose** (TED hose are socks that help prevent blood clots and swelling in your legs.) and even SCDs (Sequential Compression Device).
- **Increase Fluid intake** two or three liters /day.

⇨ The big deadly risk for DVT:

- **Blood Clot** Loosening from the Lower leg and getting Sucked in right into the Lungs, Causing deadly **pulmonary Embolism.**

◊ **First, Risk for Torch Infections:**

- **TORCH infections** are a group of **infectious diseases** that affect a developing baby (fetus) or newborn baby.
- If you get a **TORCH infection**, you can pass it to your baby **during pregnancy**, **during delivery** or **after birth**.

◊ TORCH stands for:

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- **TORCH is an acronym** for a group of infections that can cause congenital conditions **if a fetus is exposed to utero**.
- **T –** Toxoplasmosis
- **O –** Other (commonly includes syphilis, varicella-zoster, parvovirus B19, HIV, etc.)
- **R –** Rubella
- **C –** Cytomegalovirus (CMV)
- **H –** Herpes simplex virus (HSV)

⇨ **1-Toxoplasmosis:**

- A **parasitic infection** gets them From **Contaminated food**, **bug bites** and **eating undercooked**.

⇨ Teaching for toxoplasmosis:

- **No Cleaning Cat** Litter boxes, avoid litter box exposure.
- avoiding Soil Contaminated Fruits of Veggies
- Stay out of gardens, even home gardens.
- Avoid raw or under cooked meat.
- Sushi is raw fish not good if it's cooked sushi it's ok.

⇨ Treatment:

- **Medications are used to treat toxoplasmosis such as** Pyrimetham**ine** and Sulfadiaz**ine.**

⇨ **2- Rubella:**

- Which is also known as **the German measles,** or **the 3-day measles** is a viral infection caused by the **Rubella Virus.**

⇨ What is the Rubella IgG Test?

- **Rubella IgG Test** is used to monitor or measure the amount of the **Rubella IgG antibodies** in the blood of a person who had been **infected or who is suspected of Rubella.**

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- If the Client **has no rubella vaccine.** So don't **give a rubella Vaccine** during Pregnancy, it should only receive it **after birth Baby**.

⇨ **3- HERPES:**

- **Herpes simplex virus (HSV)** is a common infection that Can Cause **Painful blisters** or ulcers it spreads by **skin-to-Skin Contact** it is **treatable but not curable** If Client has **active outbreak of herpes** with those Painful Lesions, we must report HCP.

⇨ Intervention in case there is an active and painful for herpes:

- Immediate antiviral therapy like acyclovir.
- **Active lessons** before delivery indicate that they **need a C-Section**.

◊ **Second, Risk for Ectopic Pregnancy**:

- Baby **starts to grow outside the uterus** typically in a **fallopian tube, it's** unsustainable for life.
- It could lead to a **ruptured ectopic Pregnancy. It's** a rupture in the Fallopian tube Leads to **massive bleeding** inside the uterus.

⇨ Diagnostic:

- **Positive HCG.**
- **Empty** uterus upon ultrasound

⇨ Sign and Symptoms of rupture ectopic pregnancy:

- **Red Vaginal Spotting**, Tenderness, abdominal Pain.
- Hypovolemic shock**: l**ow Volume or Low Pressure from Massive bleeding if we see **hypovolemic shock or tachycardia or dizziness** big key indicators of hypovolemic shock.
- Shoulder Pain is early sign, sever, **Sudden or Sharp.**
- Peritonitis: is a **redness and swelling of the lining** of the belly or abdomen. If we have a client with a ruptured ectopic pregnancy, it

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starts bleeding and now infection starts setting in **inside that Peritoneal Cavity** or basically abdominal cavity.

⇨ Sign, and symptoms of Peritonitis:

- The **Client gets an Infection** Leading to a **rigid, hard abdomen** and tenderness on the abdominal wall and Fever.

◊ **Third, Risk for Preeclampsia and HELLP syndrome:**

- Preeclampsia:
- is characterized by **High blood pressure** and **proteinuria** after **20 weeks** of gestation.
- HELLP syndrome:
- is a severe form of **preeclampsia** with laboratory findings including **Hemolysis**, elevated **liver enzymes**, and **low platelet count**.
- **Both conditions** can be life-threatening and typically occur after the **20th** week of pregnancy.

◊ **Sign and symptoms of Preeclampsia:**

- **High** Blood Pressure.
- **Prot**einuria.
- **Abdominal** Pain and **Body** swelling.

◊ 1-For **High** blood pressure:

- **over 140** it's bad and increase in **Blood pressure 15 Points** or more since the Last Visit must report to HCP it's indicate to **preeclampsia.**

◊ 2-For **Prot**einuria:

- **Abdominal Pain or body swelling** (Peripheral edema around the eyes, Swelling of the fingers and arms, as well as weight gain).

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- If **left untreated or undetected it** can lead to **severe damage of the organs** including the **Brain leading to seizure** and can lead to **HELLP syndrome**.

◊ Complication of preeclampsia:

- Stroke, placenta abruption, disseminated intravascular coagulation.

◊ **Also, Risk for HELLP SYNDROME:**

- **HELLP syndrome** is a rare pregnancy complication that mainly affects your **Blood and liver**.
- **HELLP syndrome** (Hemolysis, Elevated Liver enzymes, and Low Platelets) is a severe complication usually associated with preeclampsia.
- It usually occurs during the **third trimester of pregnancy** (between 28 to 40 weeks) but can occur anytime in the second half of pregnancy (from 20 weeks onwards).

⇨ **In the third trimester:**

- If a Client **Comes in with right upper quadrant Pain** along with nausea and vomiting this is a big sign showing **HELLP Syndrome** is happening.
- **A Persistent headache** with blurred Vision, from **uncontrolled Blood pressure.**

⇨ What are the risk factors for HELLP syndrome?

- People with **preeclampsia** have a higher risk of HELLP syndrome.

⇨ Is preeclampsia the same as HELLP?

- **HELLP** is usually considered a severe **form of preeclampsia.**
- **Preeclampsia leads** to high blood pressure (hypertension) and proteinuria (high levels of protein in your pee).

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- **HELLP syndrome typically** occurs with preeclampsia but can also have **preeclampsia without HELLP**.

⇨ intervention HELLP syndrome Include Pharmacology with Pregnant:

- **Magnesium sulfate** prevents seizures and **Mellow out Blood Pressure**. If Seizures activity Stops this means the magnesium Sulfate is Successful or **Blood pressures lowers**.
    - Always prepare antidote for **Magnesium Sulfate** that's **Calcium gluconate**. We must monitor the client from low and slow, for example **slow deep tendon reflexes**, slow **respiratory rate**, even **low** blood pressure heart rate and even decreased mental status if we see any of these we must stop or slow the **Magnesium Sulfate**.
- **Beta blockers.**
- **Calcium channel blocker.**

♦ **BUT AVOID:**

- **ACE inhibitors** and **ARBs for Pregnant** women as Lisino**pril** and Losar**tan**

◊ **Fourth, Risk for Placenta abruption:**

- The **placenta abruptly detaching** from that **uterine W**all While the baby's **still inside** can be very deadly for a baby. So, without **Placenta Firmly** attached to **uterine Wall** the baby **doesn't have any way to get oxygen or nutrients**, and the mother is at risk of bleeding.
    - Placenta:
    - **Helps the baby get oxygen** through the umbilical cord that basically baby oxygen tube.

⇨ Placenta abruption Signs and symptoms:

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- **Dark red** vaginal bleeding.
- **Abdominal Pain** and rigid tender uterus mean some type of trauma, this Client will be bleeding out inside, Leads **to hypovolemic shock.**

⇨ Interventions for placenta abruption:

- **Anticipate** Emergency C Section.
- Apply Continuous external **fetal monitoring.**
- IV access draw blood for type and screen blood transfusion (18-20).
- Monitor for signs of **Hypovolemic shock** that low BP, as well as tachycardia, and Pale Skin as well as Pallor.

◊ **Fifth, Risk for Placenta Previa:**

- **This is an abnormal implantation** of the **placenta** over that **cervix door**, either **completely or partially** right at the bottom of that uterus.
- Cervix:
  - is at the bottom of the uterus **this is the door of the baby** the uterus but in this case, it's blocked It makes normal **Vaginal delivery Impossible** so, Client must get a C. section.
- It may be resolved on its own by the **third trimester** as Pregnancy Progresses, and **placenta can slowly migrate away.**

⇨ Placenta Previa Sign and symptoms:

- **Painless Vaginal bleeding** «Bright red»

⇨ Interventions For Placenta Previa:

- Anticipate blood transfusion.
- Initiate 2 large IV Catheters.
- Draw blood for type and screen.
- Pad Count to assess for bleeding.
- Electronic Fetal Monitoring.

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- **Cesarean birth before the onset of labor** that's mean will give to the preterm (Betamethasone for Lung development)
- **No vaginal exam** or **digital exam** obtain equipment for **manual Pelvic exam.**

⇨ Education for Placenta Previa:

- Pelvic rest No sex, no douching, no vaginal exam.
- additional Ultrasound around 36 weeks' gestation, Prior to onset of Labor
- **Only if bleeding Stop** and Fetal Status is reassuring you can discharge her.
- Instruct the client to return to the hospital if blooding occurs.

◊ **Risk for Hydatidiform Mole:**

- Also Called **Molar pregnancy** it's type of **gestational trophoblastic disease** that results from abnormal Fertilization.

⇨ Sign and symptoms:

- Dark, brown Vaginal bleeding
- Elevated **HCG levels**.

⇨ Education:

- Avoid pregnancy until Cleared by HCP.

⇨ Treatment:

- **Uterine evacuation** (usually by suction curettage).
- Follow-up includes serial HCG monitoring weekly until levels normalize, then monthly for 6–12 months.

◊ **Risk for Oligohydramnios X Polyhydramnios:**

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- Its Condition Where is **Low amniotic fluid** in the uterus that puts baby at risk for **Decreases lung development** and **cord Compression.**

  ⇨ Interventions: -

- **Additional Neonatal Person** present to help support with birth.

  ⇨ Complication:

- **Pulmonary hypoplasia** (a congenital malformation characterized by incomplete development of the lungs).
- **Umbilical Cord Compression** you should Continuous Fetal monitions For Variable decelerations.

➢ **Avoid these Medications during pregnancy:**

◊ NSAIDS: **(Naproxen**, Aspirin, Ibuprofen, Ketorolac)

◊ ACES, ARBs **(**Lisinopril, Losartan)

◊ Tetracycline.

◊ Carbamazepine (Seizures drug)

◊ **Vaccines are not recommended for pregnancy:**

- **No live Virus Vaccines** are given during pregnancy and up to 1 to 3 months before pregnancy.
- Varicella « Chicken Box », Rota virus.
- **Live or activated influenza MMR** (Measles, Mumps and Rubella)

◊ **Vaccines are considered Safe during pregnancy.**

- **Tetanus**, Diphtheria, Pertussis and Tdap.
- **Inactivated influenza**, Flu Shot «27-36 Weeks.

◊ **RH:**

- **The Rh factor** is one of the proteins on **RBCs** used to indicate whether the blood of two different people is **compatible** when mixed such as **blood of a mother** and her **baby at birth.**

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- **It is routine and important that the Rh factor** for a mother and **unborn child** be determined during pregnancy.
    - If an expecting mother is **Rh negative** and **her baby is RH is negative,** there aren't usually any concerns.
    - **if the expecting mother is RH negative** and her baby is **Rh positive**, the **mother's blood** might produce the **anti-D antibodies** the effect of these antibodies on the development of the **unborn child.**
- After **birth MOTHER** should take RH if **RH- mom** with **RH Positive FATHER.**

◊ **Education for Pregnancy.**

- Avoid alcohol and obtain testing for **rubella immunity.**
- In the Second Trimester Gestational diabetes screening and Preeclampsia.
- For Weight gain:
- Expected Weight gain «25 - 35 Pounds during Pregnancy.
- For Diet:
- **Folic acid** 400 mcg per day.
- **Calcium 500mg** per day, dark green, leafy Vegetables.
- Iron rich foods (meat and dried fruit).
- **Iron supplement** in the empty stomach and Risk for **Constipatio**n should Increase Vitamin C to aid absorption «orange Juice. »
- For Protein Foods:
- **Grilled chicken**, Turnip greens, Peanut butter Juice
- **Vegetarian Protein foods**: Dried beans, seeds, Peanut butter peas.

⇨ Avoid:

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Classification: Internal Use

- **All those foods, during pregnancy.**
  - Unhealthy, Excess Salt, butter, Fat, margarine, unpasteurized, Raw milk, egg Salad, Sandwich.

PART TWO Labor and Delivery

➢ **There are four stages of Labor:**

⇨ **Stage one:**

- The Cervix gets **Dilated** and **Thinned this is** Called **Effacement.**
- **Cervix: is** the door that is open with **dilation and letting the baby** get out.

◊ The goal of this Stage:

- Get that cervix **dilated 10 centimeters**.

⇨ **Stage two:**

- Where the delivery of the baby happens.

⇨ **Stage three:**

- Placenta delivery.

⇨ **Stage four:**

- Recovery Stage, the big Safety is bleeding to **the mother.**
- For the baby **breathing,** we must give a full assessment for newborns with **APGAR scoring.**

➢ **What is the truest sign of Labor?**

- **Confirmed by** progressive cervical changes 10 centimeters and effacement gets **shorter and thinner.**
- BUT,
- **Contractions alone** can happen in false labor (Braxton Hicks).
- **Water breaking or bloody** show may happen without actual labor starting right away.

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There are both false and true Contractions: ○

⇨ What is manifestation of true labor Contractions?

- **Regular** Contractions.
- Increase in both **Frequency** and **duration** and **intensity**.
- **Doesn't** decrease with rest.
- The **Cervix** is Progressively Changing with dilation.

⇨ What is the manifestation of False labor Contractions?

- Irregular (come and go).
- Decrease with rest or Changing Position.
- Cervix has no change.

⇨ The client reported intensive back Pain and Fetal position in the **right occiput posterio**r which interventions would help alleviate the back pain during early labor?

- APPLY counter to the sacrum, during back Pain

⇨ **Fetal Heart rate**

◊ **Base line:**

- Normal fetal heart rate (FHR)**110 to 160.**

◊ **Variability:**

- How is the jiggly line in FHR?
  - More jiggly = happier baby

◊ **Types of variability:**

- Absent: not variability
- Minimal: Filter line variability
- Moderate: Normal
- Marked**:** Stressed baby.

◊ **Acceleration:**

- Temporary i**ncreased** heart rate = good oxygen.

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◊ **Declarations:**

- Drips from base line.

◊ **Fetal heart rate Monitoring**

⇨ Notice that:

- **Declarations****The Lower** heart rate is bad.
- **Acceleration,** that faster heart rate is good.

◊ **For any Declarations (LOAD):**

⇨ **L→**

- Left side, repositioning.

⇨ **O→**

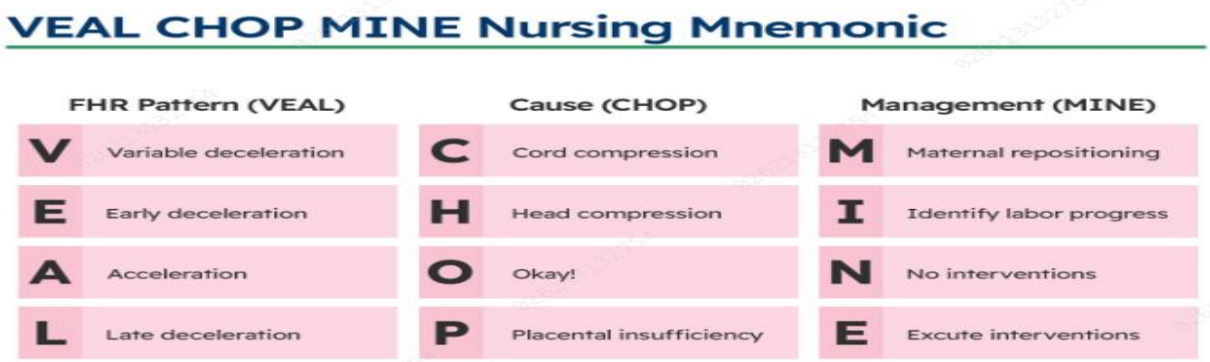
- Oxygen via face musk

⇨ **A→**

- Alert the health care providers and prepare terbutaline.

⇨ **D→**

- Discontinue **that Oxytocin** (which Helps to decrease contraction) and always increase IV Fluids.



◊ **VEAL CHOP:**

⇨ **V →Variable declarations:**

- Those Very bad dips. It means **Cord Compression**, we need to get the head of the cord, it's (Very Concerning, Very Concerning strips)

⇨ **E→ Early declarations:**

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- It shows good Contractions. It means that the head of the baby is getting Compress.

⇨ **L → Late declarations:**

- There are horrible, it means **placenta Insufficiency decrease Oxygen**.
- **A →Accelerations:**
- Meaning a happy baby means good oxygenation.

➢ **Stage one:**

- **The cervix** opens basically dilating which is called **effacement.**
- The goal cervix **gets 10** centimeters.
- **Contractions** are getting longer, Stronger.

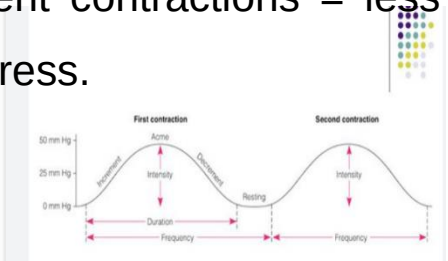
⇨ **But:**

- **Contractions** are No Longer than **90 seconds** and not closer than **two minutes** We want deep, Strong Contractions **but not all the time**.

◊ Why Contractions Shouldn't Be Closer Than 2 Minutes:

- **Recovery time for mom and baby**: Both need time between contractions to rest and re-oxygenate.
- **Placental blood flow:** During contractions, **blood flow to the placenta** is temporarily reduced. Too frequent contractions = less blood flow over time = higher risk for fetal distress.

⇨ **Normal Contraction:**



⇨ The Frequency of contraction:

- From the **beginning** of one contraction to **the beginning** of the next.
- Should be around **two to three** minutes apart from Contraction.

⇨ Duration for contractions:

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- how long contraction is lasting”
- Should be at Least 60 seconds.

⇨ For Intensity Contractions

- How strong the contraction”
- Should increase closer to delivery.
- 60 mmhg anything Over 90 mmHg may indicate **uterine hyperstimulation.**
- **Rest**: Should be **at least 60 seconds** to allow the uterus and baby to recover.

⇨ **Uterine tachysystole:**

- a condition of excessively **frequent uterine contractions** during pregnancy ,over **5 Contractions in 10 minutes** that’s too many Contractions which lead to **Fetal distress which** cause **Hypoxia.**

⇨ **There are three phases in stage one:**

◊ Early or latent stage.

- Cervix= zero to 3 cm.
- Effaced= zero to 30%.
- Give **Oxytocin stimulating** for uterine contractions.
- Irregular contraction “frequency 5-30 min, duration 30 seconds.
- Monitoring fetal heart rate is a priority assessment for **late declaration.**

◊ Active phase:

- Cervix 4-7 cm.
- Effaced 100%.
- **Pain medication:** IV narcotics give slowly during the peak of contraction.

◊ Transitional phase:

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- Cervix 8 -10 cm.
- Strong **desire to push.**
- Don't push until 10cm.
  - Anxiety, bloody mucus.

♦ Interventions for Transitional phase:

- Emotional support, breathing technique, Document the FHR every 15 minutes.

➢ **Stage Two:**

- Baby is coming out.

◊ Signs:

- Increased Contraction and spontaneous urge to push.

◊ During the Second stage of labor:

- The baby is coming out.
- Don't tell the Client to push **until they are 10 cents dilated** because it could lead to **a big rupture.**

◊ Pushing Properly is a big priority:

- **Avoid holding** their breath or even tightening their abdomen.
- **Encourage** them to push when they feel the urge.
- Deep breath out through an open mouth
- **Always assess** the fetal heart rate and Frequency of Contractions, duration of Contractions.
- **Remember,** we don't want any hard, Firm Contractions because too many contractions Can lead to damage inside the uterus.

◊ Pharmacology:

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- **Don’t give Pain medication** when it is close to delivery in about 30 min or less just stop **OPIOD 30 minutes** before delivery hold any type of Pain medication because it’s low and slow.

◊ After Delivery:

- **Suction** the nose and mouth first for baby and check for a Cord around the neck.
- **Immediately Place** little baby and mom Skin to skin and breast Feeding.
- Do an Apgar score.

➢ **Positions to Know For safety:**

◊ What is the meaning of **Fetal Station:**

- Relationship of the **Fetal Presenting Part** and the **mother’s Ischial spine.**
- **For a negative Station**, this means that the baby's head is **above** the **mom's Ischial Spine** and the baby is deeper Inside the Pelvis. So, the closer and closer the baby is to coming out the more station it gets, the more means increase.
- **Station zero means** the baby's head is level with the **mom's ischial spine** and the head is engaged ready for labor.
- **Station Plus one or even plus five**, this means that the baby is coming out the head is crowning right so encourage the mom to Push at this Point.

◊ **What is the meaning of Fetal Lie:**

- This refers to the **relationship** between the **spine of the mom and the spine of the baby.**

◊ For Longitudinal (Vertical) Lie:

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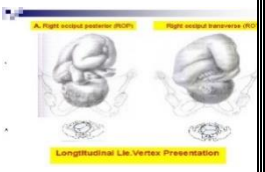
- **The fetal spine** is parallel to the **client's spine.**

◊ **Most common type.**



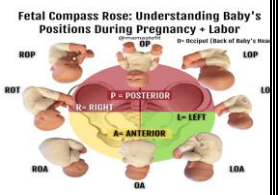
- Baby's spine is parallel to the mother's spine**.**
- Can be either:
  - Cephalic (head-down) ideal for delivery.
  - Breech (feet or buttocks down) may require special management or C-section.

◊ A transverse or Horizontal:

- Means that the baby's Spine is **Perpendicular** is kind of sliding outside way this is a **huge complication for big risks**.

◊ **Positioning for the baby to deliver.**

- The **best** Position is **Right occiput Anterior** or **Left occiput Anterior.**
- **OCCIPUT Posterior** (OP) and **occiput transverse** (OT) are very **bad** positions.



◊ Complication OCCIPUT Posterior (OP)?

- **Back Labor** and this result in a C-Section delivery.
- Longer Labor: Labor may take longer because the baby is not aligned optimally to pass through the birth canal.
- Risk of C-Section.

◊ Complication Occiput Transverse (OT) Position?

- **In this position**, the baby's head is positioned horizontally in the uterus.
- **Difficult to Deliver Vaginally**: A baby in the OT position cannot pass through the birth canal easily because the baby's head is sideways.
- **Umbilical cord prolapses**.

◊ Intervene For Prolapsed Cord:

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- **1-Call for Help Immediately:**
- Activate emergency response and alert the OB team.
- Prepare for emergency C-section.
- **2. Relieve Pressure on the Cord:**
- Use a sterile-gloves hand to lift the presenting part (head/foot) off the cord during the vaginal exam.
- Do not remove your hand until delivery.
- **3. Position the mother to reduce cord compression:**
- Knee-Chest Position.
- Trendelenburg Position – lying flat with legs elevated.

◊ Intervention for Client has Sever Contractions:

- L→ Turn mom on left side
- O→ Oxygen
- A→IV Fluids
- D→ Discontinue the oxytocin helps the uterus to Contraction.
- **Administer Tocolytics (if prescribed)** Medications like **terbutaline** may be used to relax the uterus.
- Monitor Fetal Heart Rate Closely
- Look for **late decelerations** or signs of fetal distress.

◊ **Third Stage in labor:**

- Is delivering the Placenta we have **two arteries** and **one vein** AVA.
- We must deliver the **entire Placenta** If we leave something inside the uterus, it can lead to **infection** or **hemorrhage** that preventing the uterus From Contracting it can also lead to **uterine inversion**, where the **uterus gets flipped inside out** and even when **pulling the Cord**.

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Classification: Internal Use

- **Never Pull on the Cord** to deliver the Placenta, high risk of tearing the placenta and leaving placenta Fragments inside that uterus.

◊ Placenta:

- Thinking about when Placenta leaves that uterine wall, we have a big risk for sever hemorrhage which that going to decrease blood **pressure and heart rate increase.**

◊ **Fourth Stage of Labor:**

◊ The number one thing in Fourth Stage of labor and Recovery Period:

- Stop uterus from bleeding that's **why Called recovery.**

◊ For Pharmacology after Placenta delivery:

- Put the Client on **oxytocin**, which helps the **Uterus to Contract and Stop bleeding.**

◊ For non-Pharmacology after Placenta delivery:

- **Massage the Fundus** to help the uterus to Contract and Present Bleeding.
- **A Fundus** that is **Soft and boggy** needs to massage until firm.

◊ The goal Fundus:

- to be **Firm not soft** to stop bleeding.
- **The Client should be Void** or use **a catheter**, just make sure the **bladder is not displacing that uterus.**

◊ Remember:

- **Boggy and soggy** equals **bleeding** we must do message and oxytocin infusion.
- We don't want the **bladder to be displaced with the uterus.**

◊ If we get a displacement:

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- First, we must get **a client empty the bladder**, to bring the funds into the midline.
- Second, in and out the catheter.

◊ Bleeding:

- Peri-pads are crucial. Must not be fully saturated in less than one hour.
- **One pad every 15 minutes** or a **new pad every five minutes** is a great indicator of bleeding.

◊ **Example:**

○ The client's peri-pad is saturated with blood and blood soaked into the bed linens. What is the nurse's initial action?

- First, should be gentle massage.

◊ **Remember:**

- **Oxytocin and Fundus massage** are one of the biggest interventions to get that fundus **firm** at **midline** and stop the bleeding.

◊ Clients with low BP and high HR, and they soak their pads ones every minute, we have four beds soaked what is the biggest priority? What are the clients' needs?

- Need the fundus to be reassessed for boggy, displacement.

◊ **Lochia:**

- This is normal discharge after birth it basically Sloughing off the inner lining of the uterus it should be light in Color and the amount should be **decrease after each passing day since birth.**

◊ **Colors:**

- Rubra is that dark red, and it lasts three to four days.
- Serosa is brown (Pinky) that lasts four to 10 days.

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- Alba is White Yellowish (Creamy) color around 10 to 28 days after birth.
- So, it's Normal to have those three Stages, and small clots are to be expected.

◊ It's not normal:

- Large clots and even mal odorous, or basically foul odors its indicate **to infection and excessive bleeding**.
- One pad in 15 minutes for bleeding we always cheek underneath the client for Pooled lochia. Or pooled bleeding.

➢ A Minoinfusion:

- **A procedure where warm sterile fluid** (usually normal saline or lactated Ringer's) is infused into the amniotic sac through an intrauterine pressure catheter (IUPC).

⇨ Purpose / Why is it done?

- **To dilute meconium-stained amniotic fluid**
  - Prevents the baby from inhaling thick meconium (which can cause respiratory problems).
- **To relieve umbilical cord compression**
  - This helps reduce **variable decelerations** in the fetal heart rate caused by pressure on the cord.
- **To increase the amount of amniotic fluid**
  - Especially in cases of **oligohydramnios** (low fluid)
- Nursing considerations:
- Monitor **fetal heart rate (FHR)** closely.
- Assess for **fluid return** to avoid uterine overdistension.
- Watch for signs of **uterine hypertonicity or rupture**.

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- Document amount and type of fluid used.

➢ Uterine inversion:

- When the **uterus turns inside out**, it is often during delivery of the placenta.

⇨ What are the Causes OF Uterine inversion?

- Can be **from excessive Cord traction** when trying to pull the umbilical cord to deliver the Placenta.
- **From Placenta accrete**, this where the **placenta is basically too firmly** attached to the Uterus and has trouble coming out and **inverts that uterus Part or all of Placenta remains attached.**

⇨ Sign and Symptoms for Uterine inversion:

- Severe abdominal Pain.
- Some Symptoms of bleeding leading to hypovolemic Shock ↓BP ↑HR.

⇨ interventions for uterine inversion:

- We want to **relax** that inverted uterus.
- **We give terbutaline** to Slow and stabilize those Contractions.
- **Magnesium Sulfate** to mellow out that inverted uterus.
- Once the Uterus **is Stabilized**, The Provider Can repositioned the uterus into normal shape.
- **Only after** the uterus is reposition by the Provider then we give **oxytocin to Contract** that uterus like normal.

⇨ Note:

- **Avoid IV oxytocin** before the inverted Uterus is repositioned.

⇨ **Remember:**

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- **During Contractions** the baby will hold their breath, and Fetal oxygenation is impaired so is vital to keep the baby well oxygenated in between.

➢ **OB Medication After delivery**

⇨ **Uterine Relaxants (Tocolytics):**

- **Help to stop Labor** is basically the **opposite of Oxytocin** because oxytocin helps to Contract the uterus to **induce labor.**
- Used to **slow or Stop Contraction** during Pregnancy.
- Typically given to women who are in **preterm labor** to try to delay birth for 1 to 2 days.

⇨ I: Indomethacin (NSAID)

⇨ N: Nifedipine (ca channel Blocker)

⇨ M: Magnesium sulfate

⇨ T: Terbutaline adrenergic agonist

- **Magnesium Sulfate:**
- Mellows out the body which Make the body Low and slow.
- **Always** Look for, Low respiratory rate, low heart rate, low Blood pressure, low DTRs.
- Toxicity, Stop or slow the infusion and notify provider, Prepare antidote **calcium gluconates.**
- However, the use of **magnesium sulfate** is no longer recommended for tocolysis due to **high maternal** and **fetal side effects**.
- **Nifedipine and indomethacin** are now more popular and widely used tocolytic agents.

➢ **Drugs that given to a baby after Birth**

◊ Often given to Premature Babies:

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- We give Steroids « ending in Sone like Betamethasone » helps to speed up the maturity of the lungs in Premature Babies Surfactant is Low it's not created quickly enough.

⇨ Big risk Factors for premature Labor:

- **Distended uterus**, as well as periodontal disease, and even Short cervical length.
- **Polyhydramnios** « Too much amniotic fluid »
- Client has a history of Preterm births.
- **Infection,** Placenta Abruption, stress, Smoking

⇨ Sign and symptoms for premature Labor:

- Rupture members: 20-37
- Low back Pain
- Contraction every 2 MINS or less
- Diarrhea.

⇨ Preventing measures to Prevent preterm labor:

- **A Prophylactic cervical cerclage** can be implemented this is where we go in **and put sutures** into the cervix itself Just to make sure it's Shut. This is mainly For Cervical insufficiency; 12 to 18 Weeks gestation and the stitches are removed between 36 to 37 weeks before delivering.

⇨ Education for Prophylactic cervical cerclage:

- **Do not do anything** that's going to increase Pressure or Put any additional stress on that cervix like activity restriction including bad rest.
- No sexual intercourse, as well as assessment of the Fetal movement.

⇨ Pharmacology for any newborn that is preterm:

- **Steroids like betamethasone (IM) help** to stimulate surfactants.

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Classification: Internal Use

- **Magnesium Sulfate IV**, protect the body's brain, reduce the risk of Cerebral Palsy and Calcium gluconate should be ready in Case of Toxicity
- **Antibiotics** Penicillin IV Prevent Group B streptococcus.

Procedures that help to assist with delivery

⇨ Forceps and Vacuum**:**

- Helps to pull the baby out of the birth Canal.

◊ Forceps:

- **When using the Forceps**, It Can Cause major tearing inside the uterus.
- The **Big caution:**
  - Never **apply Fundal Pressure** during forceps use we **have a huge risk for uterine rupture**.
  - **Uterine Rupture**, Basically, tear the uterus, leading to major bleeding, as well as **Vaginal Laceration** with Forceps use.
- **Some Causes of Uterine Rupture:**
  - Can be From C Sections or Traumatic delivery like, Forceps or vacuum but even, over distention of that uterus, From Twins, Triplets

◊ Vacuum:

- Simply traction applied to the fetal head.
- The **Big Caution:**
  - never apply Fundal pressure, it can always Lead to uterine rupture and even Vaginal Laceration.

⇨ Symptoms include major bleeding for a big rupture:

- Hypovolemic Shock

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- Low Blood pressure, Tachycardia.

⇨ For intervention for major bleeding inside the uterus:

- Immediate C. Section delivery.
- Hysterectomy to remove the uterus.
- IV Fluids and blood products.

➢ **Caesarean Birth**

⇨ Planned in case of:

- Previous C-Section
- Large baby or a lot of babies.
- Infection.

⇨ Unplanned Emergency in case of:

- **Fetal distress** (typically occurs when the **fetus has** not received enough oxygen)
- Placenta abruption.
- Prolapsed Cord.
- Breech Birth.

➢ **PROM (Premature Rupture of Membranes)**

- PROM is **rupture of the amniotic sac ("water breaks") before the onset of labor**.
- If it occurs **before 37 weeks**, it's called **PPROM – Preterm Premature Rupture of Membranes**.

⇨ Causes:

- UTI or abdominal trauma.
- **Infection (e.g., sexually transmitted infections)**
- **Multiple gestation**

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- **Polyhydramnios**
- **Smoking or poor nutrition**

⇨ INTERVENTION:

- If the Water break gives **Prophylactic antibiotic to prevent** Group B. Streptococcus infection.
- **Prophylactic Antibiotics:**
- Given if:
- Water has been broken for **≥18 hours**
- **Maternal temp ≥100.4°F (38°C)**
- **Gestational age <37 weeks**
- **Steroids (e.g., Betamethasone):**
  - If <34 weeks to help fetal lung maturity
- **Magnesium sulfate ($MgSO_4$):**
  - If <32 weeks → for **neuroprotection** of the fetus

⇨ If more than 18 hours have passed since membrane rupture:

- **Increased Risk of Infection**
- After 18 hours, the risk of **chorioamnionitis** and **neonatal GBS (Group B Streptococcus)** infection increases significantly.

⇨ Interventions:

- **Start Prophylactic Antibiotics**
  - Even if there are no signs of infection yet.
  - Goal: Prevent **Group B Streptococcus (GBS)** transmission to the newborn.
- **Monitor for Signs of Infection:**
  - Maternal **temperature ≥ 100.4°F (38°C)**
  - **Fetal tachycardia** (↑ FHR)
  - **Uterine tenderness**

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Classification: Internal Use

- **Foul-smelling vaginal discharge**

➢ AROM (Artificial rupture of membranes):

- **Amniotomy or artificial rupture** of the membranes (AROM) is when a healthcare provider intentionally breaks a pregnant person's amniotic sac.
- **HCP** may **Recommend AROM** to speed up labor and encourage dilation of the cervix.
- **Ruptured membranes** the nurse should use **a sterile glove during** vaginal examinations to prevent infection.

⇨ Big Safety risk:

- **Umbilical cord Prolapse:**
  - Umbilical cord is the little baby oxygen tube so if gets Compressed, the little baby's oxygen tube gets Compressed.

⇨ When assisting with AROM the nurse should:

- **Monitor client temperature** at least every two hours.
- **Assess FHR** before and after procedure because risk for **umbilical cord prolapse and fetal bradycardic.**
- Place client in **a sideling position.**
- Assess the Amniotic Fluid for:
- **1. Color:**
- Clear or pale yellow → Normal
- Green or stained with meconium → Possible fetal distress
- Bloody fluid → Could indicate placental abruption or trauma
- **2. Amount:**
- Too much = Polyhydramnios
- Too little = Oligohydramnios

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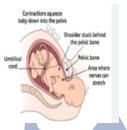
- Both may be linked to fetal complications.
- **3. Odor:**
- Foul-smelling fluid may suggest infection, such as chorioamnionitis.



➢ Shoulder dystocia

- An **obstetric emergency** where the **anterior fetal shoulder** becomes **stuck** on the maternal **pubic symphysis** that results in delaying the birth of the baby's body associated with **Macrosomia.**
- The nurse should preform **Mcroberts maneuver** (healthcare provider flexing **thighs toward abdomen** the maneuver helps to rotate pelvis **and open sacrum** to release the baby's shoulder.

- What causes shoulder dystocia?
- **Shoulder dystocia** occurs when the baby's shoulder or shoulders get stuck behind your pubic bones during delivery.

⇨ The following factors may cause shoulder dystocia:

- **Fetal macrosomia**, baby weighs more than 8 pounds.
- Baby is in the wrong position.

➢ Post-Partum assessment

➢ 1-Mastitis:

- **inflammation of breast tissue**, often due to **infection**, typically occurring **2–4 weeks postpartum**.
- It is most common in **breastfeeding mothers**.

◊ Common Causes:

- Blocked milk duct
- Incomplete emptying of the breast
- Nipple trauma (cracks or sores)

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- Poor latch during breastfeeding
- **Germs** going into the breast. Germs from the skin's surface and baby's mouth can enter the milk ducts

⇨ Sign and Symptoms for Mastitis:

- Fever, **muscle aches,** even unilateral breast Swelling and even Inflammation.

⇨ intervention:

- Encourage breast feeding every one to three hours.
- Encourage Complete emptying of the breast,
- **Alternate Position:** While always using the **proper Latch technique.**
- Apply warm Compresses on the breast and Massage.
- Increase oral Fluid intake and wash hands.

⇨ What if the breasts become **too engorged**:

- Encourage the Client to use things that can **reduce swelling,** like Cool **Compresses and** Eat Lettuce, fresh Cabbage to reduce Swelling.

➢ **2-Endometritis:**

- Endometritis is a postpartum infection of the endometrial lining of the uterus, and it may extend to all layers of the uterus.
- It commonly begins at the placental implantation site.

⇨ Most Common After:

- Cesarean birth (especially unplanned/emergency
- Prolonged rupture of membranes
- Multiple vaginal exams during labor
- Internal fetal monitoring
- Manual removal of the placenta

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- Poor hygiene

⇨ Signs and Symptoms:

- Uterine tenderness
- Lower abdominal pain
- Foul-smelling lochia
- Fever > 100.4°F (38°C) after first 24 hours postpartum
- Chills
- Tachycardia
- Subinvolution of uterus (uterus remains enlarged, soft)

◊ Treatment:

- Gentamycin.

⇨ NCLEX Tips:

- Prioritize assessment: foul-smelling lochia + fever = suspect endometritis.
- Don't delay antibiotics report signs of infection to the provider immediately.
- Know prevention strategies: hand hygiene, limit vaginal exams, sterile technique during delivery.

➢ 3- Hemorrhage:

- Postpartum Hemorrhage (PPH)
- Cause: Uterine Atony
- Definition:
  - Postpartum Hemorrhage (PPH) is defined as:
  - >500 mL blood loss after vaginal delivery
  - >1000 mL after caesarean section
- **Uterine atony** is the **most common cause** of PPH. It means the uterus is **soft, weak, and fails to contract**, allowing continued bleeding

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⇨ Risk Factors for Uterine Atony:

- Overdistention of the uterus (e.g., twins, polyhydramnios, macrosomia)
- Prolonged labor or rapid labor
- Use of magnesium sulfate
- General anesthesia
- Retained placental fragments

⇨ Intervention if excess Bleeding present:

- **First-Line Intervention:**
- Fundal massage – Stimulates uterine contraction
- Administer Oxytocin (Pitocin) – First-line uterotonic to contract the uterus
- **Second-Line Interventions (Uterotonic Medications):**
- Used to induce or strengthen uterine contractions and control bleeding if oxytocin is not enough:
- Methylergonovine (Methergine)
- Potent uterotonic agent
- Contraindicated in patients with hypertension
- Causes vasoconstriction, which can dangerously raise BP

➢ **4- Neonatal abstinence syndrome (opioid withdraw):**

- caused when a baby withdraws from drugs like **opioids** It occurs when the baby is no longer receiving the drug after birth.

⇨ Manifestations:

- Irritability, restlessness, high-pitched cry
- Increase muscle tone, hyperactivity.
- Abnormal sleep, nasal congestion, sweating, sneezing
- Tachypnea, poor feeding.

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⇨ Treatment could include:

◊ Supportive Care (First Line):

- Reduce stimuli: dim lights, quiet environment
- Swaddle baby
- Small, frequent feedings
- Promote skin-to-skin and bonding
- Use pacifier to help with non-nutritive sucking
- Monitor weight, I&O, and hydration
- Monitor for seizures

◊ Pharmacologic Treatment (if severe):

- Morphine or methadone to wean off opioids.
- NCLEX Key Points:
- "High-pitched cry + sneezing + poor feeding = Think NAS"
- First-line = **non-pharmacologic supportive care**
- Medications only if symptoms are severe
- Always monitor for **seizures and dehydration**

➢ **5-Post-partum psychosis:**

- A severe mental health disorder that can **occur within the first 2 weeks postpartum**. It is more severe than postpartum depression and requires immediate intervention to prevent harm to the mother or infant.

◊ Risk Factors:

- Personal or family history of:
- Bipolar disorder (strongest predictor)
- Schizophrenia
- Previous postpartum psychosis

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- Sleep deprivation
- Hormonal shifts after childbirth.

⇨ Signs & Symptoms:

- Delusions (e.g. believing the baby is evil or not theirs)
- Hallucinations (auditory/visual)
- Disorganized thoughts or speech
- Extreme agitation or confusion
- Rapid mood swinges
- Refusal to eat or sleep
- May include suicidal or infanticidal thoughts

⇨ Nursing intervention:

- Immediate hospitalization (psych referral)
- Ensure mother and infant safety
- Do not leave mother alone with baby.
- Notify the provider immediately
- Support family involvement & observation
- **NCLEX Key Tips:**
- Emergency! Requires immediate action and hospitalization
- Delusions + hallucinations + postpartum = psychosis, not depression
- Do NOT leave mother alone with the infant under any circumstances
- Screen all postpartum clients, especially with bipolar history

➢ Newborn assessment

◊ Timing of Assessment:

- Immediately after birth (APGAR scoring at 1 and 5 minutes)
- Full head-to-toe assessment within first 2 hours of life

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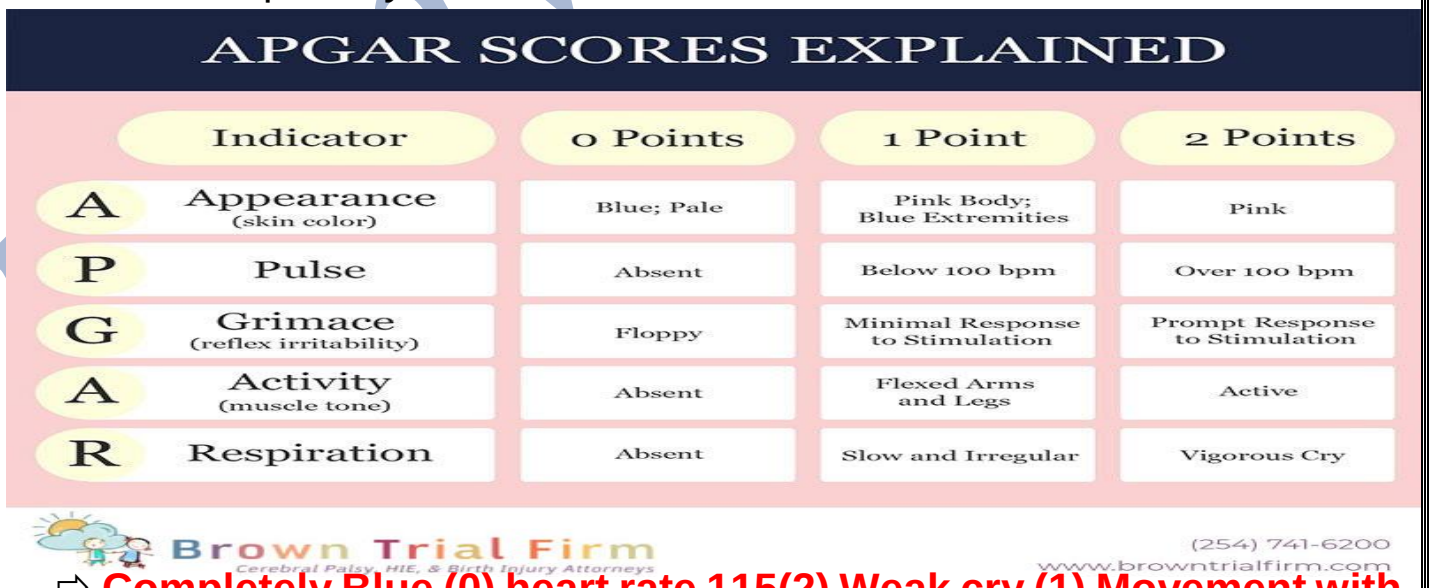
- Ongoing assessments during hospitalization and at discharge

◊ **APGAR Score:**

- The APGAR Score is used to **quickly evaluate a newborn's condition** at 1 minute and 5 minutes after birth. It helps determine if the baby needs immediate medical attention.
- **Zero to 3**: sever distress, need full resuscitation.
- **Four to six** this is **moderate distress** requires Some type of resuscitation, **Oxygen**, Suction (Stimulating baby, like rubbing the back or even feet)
- **Seven or more** is considered an adequate baby.
- **10** is perfect.

⇨ **APGAR**

- **A**→ Appearance
- **P**→ Pulse
- **G**→ **Grimace or reflex irritability**
- **A**→ Activity or Muscle Tone.
- **R**→ Respiratory effort.



⇨ **Completely Blue (0) heart rate 115(2) Weak cry (1) Movement with actively Flexing his extremities (2), Shows Facial grimaces when nose suction. (1)**

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Classification: Internal Use

- Moderate distress TOTAL = 6

➢ 1-Skin:

- **Mongolian spot** discoloration on buttock and the lower extremities This is completely normal and expected.
- **Blue discolorations:**
  - on **the hands and Feet,** but the **trunk** of the body is pink. This is completely normal; the pink trunk means the baby is ok. It's called **acrocyanosis**, blue hands and feet and pink core we just placed the **baby skin to skin with the mother.**

- Wrinkled, shiny skin:
  - that's Very Fragile with Visible veins this is a typical sign of a **premature baby.**
- **abundant lanugo:**
  - on their shoulders and has their back filled with **gooey vernix**? This is a typical sign of a premature baby.

⇨ So, what's normal?

- Mongolian spot, **lanugo**, Acrocyanosis, vernix Caseosa (**gooey vernix)**.

⇨ What if you get a **blue baby with a blue core or a blue Trunk?**

- Blue trunk is not good.

⇨ Intervention for a blue baby?

- Report to the HCP and possibly start the resuscitation measures if APGAR is low.
- Only **the pink core** and blue hands are normal.

➢ Nose:

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⇨ What if the baby has white papules on the nose?

- This is completely normal. It's called **Milia.**

⇨ What **about low-set ears** with a flat bridge nose?

- This is a **congenital defect**, which we must report.

➢ **Eye:**

⇨ What about **a droopy eyelid** basically ptosis of the eye?

- It's abnormal, report any drooping eye.

⇨ What about **yellowing of the sclera** in the eye during the first 24 hours?

- It's not normal, it's typical jaundice. report.

➢ **Fontanels in the Head:**

⇨ What if the baby comes in with a **misshapen head** resulting from pressure in that birth canal?

- This is completely normal and **disappears from 3 to 7 days** after birth.

⇨ What about **bulging fontanelles while resting**?

- This is not normal at rest; it could **indicate infection** or some type of increase ICP. Also, not normal.

➢ **Chest:**

⇨ What about listening to the chest?

- We must listen to **murmurs**.
- Heart murmurs are relatively common in children.

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Classification: Internal Use

- **A heart murmur** is an **extra sound that can occur** between heartbeats as blood moves through the heart. In babies, it is usually **not a cause for concern.**
- Needs follow-up if Murmur is loud, persistent, or associated with cyanosis, poor feeding, or respiratory distress

⇨ What if we hear **Crackles inside** the Lung **immediately after Birth?**

- It's normal after birth simply **suction.**
- But not normal, **Persistent crackles** a few hours after birth, Wheezes, Stridor.

⇨ How do you know the infant is having **respiratory distress**?

- **Nasal Flaring** and even **grunting** or tachypnea with over 60 respiration per minute all of these Indicate (respiratory distress).

➢ **Abdomen:**

⇨ What If there is **no urine or stool Passing** in the first 24 hours after birth?

- This is not normal.
- It's true that the little bowel sounds may be absent or even **hypoactive until that First feeding.**
- **Meconium or Stool passage** (Dark _Colored meconium poop.) is expected within the **first 24 hours**. **So, if we don't see any Voiding, or passing meconium** we must report in the first 24 hours if it's absent.

➢ **Umbilical cord assessment:**

- One vein and two arteries. AVA

⇨ What if the baby Comes out with two veins and artery?

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- We must report.

➢ **Hand and Foot:**

⇨ What about the hands and the Feet What if there are **planters that creases** up the entire <sole of the foot>?

- This is completely normal increased **creases mean maturity**, But **Very Smooth solos** of the foot is not normal very Smooth hands and Feet Shows **immature babies**.

⇨ What if there are **blue decorations on the hands** and feet?

- **it depends:** If the trunk or basically the Core of the body is pink then it's normal.
- Blue discoloration the hand is normal in that Case.

➢ **Back and spine:**

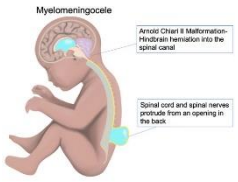
⇨ What about the back and the spine?

- **Mongolian spot** it's normal.

⇨ What about sacral dimples?

- **Sacral dimples** are not normal. This could mean **Spina bifida** or even worse, a **myelomeningocele** this is where the spine kind of **bulges outside** of the body leading to **baby death or even Paralysis**.

⇨ Clinical manifestation of Spina bifida:


Myelomeningocele
Arnold Chiari II Malformation-Hindbrain herniation into the spinal canal
Spinal cord and spinal nerves protrude from an opening in the back

- Tuft of hair, **hemangioma**, and dimple.

➢ **Newborn Vital signs:**

⇨ Vital Signs:

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- **Assess every 30 minutes** For First two hours of birth then reassess every 48 hours.

⇨ HR: Resting, When the baby's not crying **110 to 160 / min**. Always assess the **apical Pulse** for at least one min, make Sure to Place the bell of the Stethoscope near of the fourth intercostal space and mid clavicular.

⇨ Note:

- Heart rates can get down to **80 beats per /**min When they are Sleeping.
- Up to 180 beats Imine when they are crying or agitated.

⇨ Respiration:

- Between 30 to 60 respirations per/ minute.

⇨ Temperature:

- No rectal temperature **immediately after birth** for newborn.

⇨ Blood glucose:

- 40 or more
- We always encourage breast feeding after birth.

➢ **Medication given after birth for newborns:**

- For eyes **Erythromycin ointment** to prevent infection that leads to blindness.
  - Give in the **Vastus Lateral**:
    - **Vitamin K**, helps with Clotting to Prevent Bleeding, given within 6 hours after Birth.
      - **Hepatitis B Vaccine** in first 24 hours Provide antibodies against Hep B.

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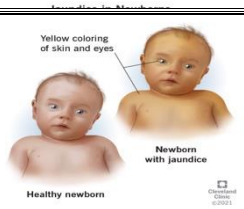

➢ **Newborn risk for:**

⇨ **1-Jaundice:**

- **Occurs** when bilirubin builds up in the **baby's blood.**
- Hyperbilirubinemia is the medical term for this condition.
- **Bilirubin** is a yellow substance **Body** creates when red blood cells break down. While mother is pregnant, the **liver** removes **bilirubin** for the baby. But **after birth,** the baby's liver must **begin removing bilirubin**. If **baby's liver isn't** developed enough, it may not be able to get rid of bilirubin. When excess bilirubin builds up, baby's skin may appear yellow.
- **Meconium and Bilirubin:**
  - Meconium contains **high levels of bilirubin**, a substance produced when the body breaks down red blood cells. As the baby excretes meconium, bilirubin is released into the intestines and absorbed into the bloodstream. Breastfeeding can help reduce the levels of bilirubin in the baby's blood by promoting frequent stooling, which helps excrete bilirubin more effectively.
- Intervention for hyperbilirubinemia?
- Place him skin to skin on the mom.
- Feeding a baby often (10 to 12 times a day) can encourage pooping (bowel movements). This helps babies rid their body of the excess bilirubin.
- **Use Phototherapy,** monitor him very close and reposition every 2 hours.

⇨ The Big risk of Phototherapy:

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- **Dehydration,** we give Fluids every 2 hours and cover the baby's eyes with Protective eye shades.

⇨ Which Finding should alert the nurse to suspect the **potential of jaundice in the infant**?

- Presence of **cephalohematoma.**

➢ **Hypothermia:**

- It's Cold baby.

⇨ Intervention for Hypothermia:

- **Dry the** baby immediately.
- Place them **skin to Skin on the mother**.

⇨ Sign and symptoms of Hypothermia: -

- Irritability of lethargy.
- Hypoxia, bradycardia.
- Hypoglycemia, weak Suck, Hypotonic
- No shivering ability
- Feeding intolerance.

➢ **Hypoglycemia**:

- Newborns should keep **Blood glucose** above 40 all the time.

⇨ Risk Factor for **hypoglycemia:**

- Mom with **diabetes** and Sepsis

⇨ Sign and Symptoms of Hypoglycemia in newborn:

- Blood suger↓40,
- Shaking, Sweating, irritability, lethargy.
- High Pitched or weak cry, Seizures.

⇨ Intervention:

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- Keep infant warm and Breast Feeding.

➢ **Educate parents before going home:**

⇨ **1-Prevent Gastroesophageal Reflux Disease with Newborn:**

- **Stomach contents** are supposed to travel **only one way down**. When **acid from inside your stomach** flows **backward meaning up** into **esophagus and throat**, it's called **acid reflux.**

⇨ Education:

- Burp during, after feeding.
- Hold the baby upright 20-30 mints after feeding.
- Offer smaller, frequent feeding.

➢ **2- Sudden infant Death Syndrome (SIDS).**

⇨ RISK Factor for SIDS:

- **Boys** are higher than girls.
- Low APGAR score.
- Infants with a Care give that **Smoke**.

⇨ To Prevent SIDS (sudden infant death syndrome)

○ **A → Alone**

- **Never leave** the baby alone and never leave him alone with those items. (Pillows blankets, No soft Items.)
- Smoke free environment.

○ **B** → Back

- Always keep him Supine on their back.

○ **C**→ Cribs

- No bed Sharing, No Co Sleeping

⇨ Note:

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- **We discourage** the baby from being with the Parent in the same bed.

➢ 3-Umbilical cord:

- **Intervention in the First 24-48 hours** The Cord is clamped and can be moved, but only When the Cord is dry.
- We typically let the Cord fall off by itself.
- Always Clean the Cord with Water and let it dry.
- No alcohol used.

⇨ Teaching for umbilical cords:

- **Always teach the Parents** to assess For Sign and Symptoms of infection Like Redness, Swelling, any type of drainage is not normal)
- **Fold the diaper down** and away from that Umbilical Stump.
- Should let **the Cord off by itself Not Pull**.

⇨ To reduce the risk for SIDS:

- **Avoid** soft objects in the Crib.
- Place client in supine position
- Breast feeding
- Use a pacifier during sleep.
- Sleep on firm matters not soft.
- **Ensure that vaccination up to date.**

➢ 4- Circumcision:

- **surgical removal of the foreskin** from the glans penis. It is typically performed on newborn males but can also be done later in life for medical or personal reasons.

⇨ Nursing care:

- Hand Washing before Care.

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- **Petroleum jelly application** at diaper changes.
- Normal healing **yellow exudate**
- Cleaning, warm water without soap, no alcohol

⇨ Sign for report:

- Bleeding
- Dry diaper or No Voiding 6-8 hr. after Procedures.

➢ Neonatal Resuscitation Program (NRP):

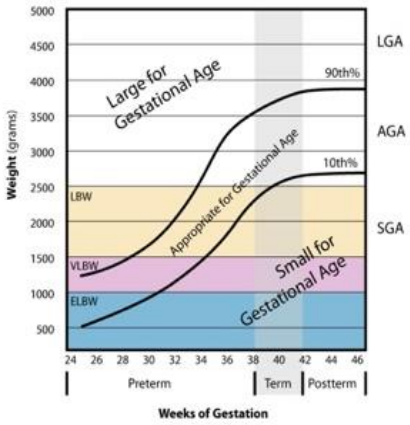
⇨ Critical interventions:

- Place the newborn of the warmer area.
- **Sniffing Position** (Neck flexion with upper cervical extension) appropriate for ventilating

⇨ Infants heart rate:

- 60-100→**Positive Pressure Ventilation PPV**
- Below 60→ **Epinephrin**e and **Chest Compression 30** Seconds **after PPV.**
- **If you can feel a pulse** but the rate is **less than 60** beats per minute, begin CPR. This rate is too slow for an infant. **Begin CPR** by **performing 15 compressions by one rescuer**.

➢ Body measurement for newborn



- Head circumference: 33-35 cm.
- Chest circumference: 30-33 cm
- Length: 44 -55 cm.
- weight→2, 500- U 3000 grams (5.5 to 9.5 lb)
- SGA→ Small for gestational age **less than 10 percentile**.

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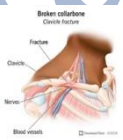
- AGA→ Appropriate for gestational age between **10th to 90th** percentiles.
- LGA→ large for gestational age **over 90th** percentile. Macrosomia More **than 4000 grams.**

⇨ Interventions For LGA:

- **Assess for birth** Injuries cephalohematoma, Clavicle Fracture
- Monitor for hypoglycemia.



⇨ The Infants' weight is 4400 g may be at risk for what?

- **Hypoglycemia**, **Fracture clavicle**, and **congenital heart defects.**

➢ Necrotizing Enterocolitis:

- a serious gastrointestinal disease that involves **inflammation and necrosis (death) of the intestinal tissue**, primarily affecting premature infants.

⇨ Sign and symptoms:

- Feeding intolerance and **abdominal distention** also bloody stool.
- Abdominal distention.
- Feeding intolerance, Signs of infection: Temperature instability, hypotension, or tachycardia.
- Lethargy: The baby appears unusually sleepy or unresponsive.
- Respiratory distress: Difficulty breathing due to sepsis or bowel perforation.

⇨ Nursing intervention:

- Daily abdominal girth Measure.
- NPO (Nothing by mouth):
    - The infant is stopped from feeding to give the intestines time to rest and heal.

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- IV fluids:
  - To provide hydration and nutrition while the gut heals.
- Antibiotics:
  - To treat any potential infections or to prevent sepsis.
- **Gastric decompression:**
  - An NG tube may be inserted to remove air or fluid from the stomach and reduce abdominal distention.
- Surgery:
  - In severe cases, intestinal perforation or significant necrosis may require surgery to remove the affected portion of the bowel.
- Supportive care:
  - Oxygen, temperature regulation, and other supportive measures as needed.

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Mental Health

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➢ **How to answer Mental health questions on the NCELX:**

- **Physiological Problems come** first before treating **psychosocial Problems.**

◊ **Classification of Psychosis:**

- Functional vs. Non-Functional

◊ **Functional Psychosis:**

- These clients do not have **physical brain disease** but **exhibit psychotic symptoms** (delusions, hallucinations, disorganized thinking). They can learn about reality, with consistent therapeutic communication and structure.

⇨ Examples:

- Schizophrenia
- Major Depression
- Bipolar Disorder (mania phase).

⇨ What is traditional **therapeutic Communication** for the patients are not altered mind:

- State the **Facts** and Always stay with **patient**
- **Assess feelings** or have the **client share their Feeling**, by asking questions '**open ended questions''** that cannot be answered with a simple 'yes' or 'no'.

◊ Non-Functional Psychosis:

- These clients have an **identifiable brain dysfunction** or medical issue causing psychosis.
- They cannot be **taught reality** while in their acute state.
- **Not reality based** which **cannot understand** it's already **altered the brain.**

⇨ Examples:

- Delirium (due to infection, drugs, metabolic imbalance, etc.)
- Dementia (Alzheimer's)

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Classification: Internal Use

- Stroke, Brain Injury, or Tumor-Related Psychosis

⇨ What is **traditional therapeutic Communication** for the patients are altered mind**:**

- **Redirect Clients** to another activity and **Set limits.**

➢ **Functional Psychosis:**

⇨ Schizophrenia:

- a serious **mental health condition** that affects how people **think, feel and behave**. It may result in a mix of **hallucinations, delusions**, and **disorganized thinking and behavior.**

◊ Key Symptoms (Positive & Negative):

⇨ **Negative symptoms of schizophrenia**:

- Where people appear to **withdraw from the world around** them, take no **interest in everyday** social interactions, and often appear emotionless.

⇨ Negative Symptoms – Lack of normal function:

- Social withdrawal
- Apathy
- Poverty of speech
- Lack of motivation

⇨ Intervention in case of negative symptoms:

- The nurse should promote **trust by encourag**ing one-to-one interaction
- Not appropriate **group activities**.

⇨ What is traditional **therapeutic Communication** for the patients are not altered mind:

- State the **Facts**.

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Classification: Internal Use

- **Assess feelings** or have the **client share their Feeling**, by asking questions '**open ended questions''** that cannot be answered with a simple 'yes' or 'no'.
- Always stay with the **patient**

◊ **Avoid those Key Words in Therapeutic Communications:**

- **Never offer** your opinion, **your own advice** or even your own experience.
- **Never minimize** the Clients' Feeling directly.
- **Never Leave** the room, always stay as much as possible.
- **Never give false** reassurance as (**everything is going to be okay**, or it will all work out, or **I'm sure you will do the right thing**)
- **Avoid ask why** like (why you feel angry when… or why do you act this way) avoid **asking why** but you can say**: Tell me more about what are you Feeling** about this? How are you Feeling about your child? Both are open-ended questions.
- No physical touch.

◊ **Positive Symptoms of Schizophrenia:**

- **1-**Hallucinations.
- 2-Delusions.
- 3-Disorganized speech, and Thoughts.

◊ **First, what are Hallucinations:**

- Just **seeing, hearing, or Feeling** Something that is not here.

⇨ For Tactile hallucination:

- **Tactile** is sense something that can be touched like **bugs** under skin Feeling like something is crawling under skin.

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Classification: Internal Use

⇨ For auditory hallucinations:

- Client is hearing Voices or hearing Sounds that are non-here.
    - Appropriate intervention for client experiences auditory hallucination:
    - **Provide music** for clients to distract the client from internal voice.
    - Assess the content of the delusion to help identify **suicide ideation**.
    - Reinforcing **reality by talking about real situations.**

⇨ For Visual hallucinations:

- The client is seeing things that are not at home.

◊ **Second, what about Delusions?**

- Fixed and False belief that **conflicts with reality.**

⇨ **For** Delusions of references:

- Clients refer to a **Secret message** or a **secret Code**, thinking that the universe or aliens are communicating with him.

⇨ **For** Delusions of Control:

- Clint thinks that something or someone is trying to Control them.

⇨ **For** Delusions of grandeurs:

- Client thinks that he is **very important**, almost like God or Jesus

⇨ **For** Paranoid delusions:

- Client thinks **that People are trying to hurt him.**

◊ **Third disorganized speech, and thoughts:**

⇨ Loose associations:

- Known as **Flight of ideas**, Rapid Shifts in thought.

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- No Logical Connection.

⇨ Neologisms:

- These are made up, Imaginary Words

⇨ Clang associations:

- Clang Just rhyming Words together.

⇨ Salad:

- Mixing Up Words

⇨ Echolalia:

- Repeating words, they heard from someone else.

⇨ Catatonic:

- immobility, like muscle rigidity.
- Mute (No Speech)
- Staring.

⇨ This Client has the most Clinical needs in Catatonic Schizophasia So the big rule for NCLEX:

- The Priority **here Needs Fluid and nutrition intake.**

◊ **Example:**

◊ Clients with **schizophrenia** leave the room as soon as the nurse enters and asks about the Client's Day what the best action is.

- Let the client leave because this Client has **scattered thoughts** if he wants to leave Let him leave maybe he has **Paranoid schizophrenia** and is thinking you are trying to harm him so following him it's not a good thing. So, in terms of therapeutic Communication:
- **Assess feeling** by asking question, **State the Facts**
- **These Client has Function Psychosis**.

◊ Do You See those Cameras on the Ceiling? The client says I'm beings watched all the time. Which response by the nurse is most

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appropriate? But the fact it's not camera **those are sprinkler in the ceiling.**

- First tell **him the fact** and **assess his feeling**, those are sprinklers in the ceiling that come on during a fire.
- **Assessing Feeling**. How does it feel to think you are being watched?

◊ Client with **Paranoid refuses food**, and states that voices are saying the food **is contaminated and deadly** what is the most therapeutic response by the nurse?

- First tell **him the fact and assess his feeling well**, I understand the voices are Very real to you, **but I don't hear them.**

➢ **Non-Functional Psychosis:**

◊ **First, Dementia:**

- General terms used to describe a **group of symptoms that affect memory, thinking, and social abilities** severely enough to interfere with a person's daily life.
- Cognitive issue when client brain is altered.
- Lose touch with reality.
- Damage to the brain
- It's irreversible like:
  - **Alzheimer's, Traumatic brains." We Cannot Cure or fix this Condition as its Permanent damage to the brain.**
  - Client Cannot **understand reality.**

⇨ How do you address with Clients with dementia?

- We cannot **simply rationalize** those clients because they damage the brain.

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Classification: Internal Use

- They don't understand the reality. So, we always **Redirect the client and Set limits.**

◊ **Second, Delirium:**

- **a sudden and severe change in mental status.**
- characterized by:
  - confusion, lack of attention, disorientation, and hallucinations.
  - It usually occurs as a result of an underlying medical condition.

⇨ Causes:

- It can be **triggered by infections** (like urinary tract infections), medications, dehydration, alcohol withdrawal, metabolic imbalances, or post-surgical recovery.
- That can alter the brain this alter of the brain **for a limited amount of time which we can fix.**
- What are the Factors Can Cause **delirium**?
- Hypoxia, infection, Low electrolytes and Drunk

⇨ Which one cannot present reality up?

- Both **Dementia, Delirium.**

⇨ **So, always:**

- **acknowledge (recognize) concerns and redirect and set limits**.

➢ **Crisis Management:**

- When Clients get out of Control and very Violent in the Clinical Setting.
- **That's what is called "Code Gray.**

◊ **There are Four Main Phases for Crisis management?**

⇨ Triggering event:

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- This is when **anxiety builds**, and the Client responds to a Threat where Client gets triggered and sometimes makes them **escalate into Violence**.

⇨ Escalation:

- We see an increase in agitation and anxiety gets worse followed by aggression.

⇨ Actual crisis:

- This is where the client **has an outburst of rage, ether shout**, or even verbal threats or Physical violence **The Crisis is peaking here.**

⇨ Post Crisis:

- This is where Clients are shown as **disorganized thinking and even depression.**

⇨ NCLEX Interventions – Always SAFETY FIRST:

- 1. Communication (First Line of Action)
- Speak **calmly and clearly**.
- **Explain the day's activities** step by step.
- **Acknowledge emotions**:
    - "I see that you're upset. Do you want to talk about it?"
- Avoid confrontation or asking **"why" questions**.
- Remove triggers if possible (noise, people, lights).
- Use a **low-stimulation environment**:
- Dim lights.
- Closed door.
- Draw bed curtain (in shared rooms).
- Allow frequent rest periods.
- 2. Medication (If communication fails):
- Use **chemical restraints** only when needed:

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- **Benzodiazepines – for fast calming**
- End in **"-pam" or "-lam"** Example: **Lorazepam**
- **Antipsychotics – for psychotic symptoms**
    - **Haloperidol**: treats **positive symptoms** (hallucinations, delusions).
    - **Ziprasidone**: treats **positive & negative symptoms**.
- **3.** Physical Restraints (LAST RESORT):
- Use **only when** meds and communication don't work.
- Must have a **doctor's order**.
- Order is valid for **4 hours only**.
- **Check and document** the client **every 15 minutes**.
- Always **meet client's physical needs**: food, fluids, toileting, hygiene.
- NCLEX Tips:
- When choosing an answer:
- First: **De-escalate with communication**.
- Second: **Use medication if needed**.
- Third: **Restraints only if necessary** for safety.

➢ **Bipolar:**

➢ **A Bipolar Disorder:**

- A mental health condition characterized by extreme mood swings that include episodes of depression and episodes of mania or hypomania.

◊ It affects a person:

- Energy – they may feel extremely **energetic or completely drained.**
- Mood – shifting between very high (manic) and very low (depressed) moods.

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- Behavior – acting impulsively, making poor decisions, or withdrawing from activities.
- Functioning – having difficulty with daily tasks, relationships, or work.

◊ Difference between Mania and Hypomania:

- Mania: More severe.
  - **May cause major problems** in work or social life and sometimes includes psychosis (losing touch with reality).
- Hypomania: Less severe.
  - **The person may still function relatively well**, but their behavior is noticeably different from their usual self.

⇨ Bipolar Disorder – Acute Manic Phase

- **Key Characteristics:**
- During acute mania, the client presents with:
- Hyperactivity and intense irritability
- Extremely high energy levels
- Severe distractibility
- Risk for **dehydration** due to constant movement and poor nutritional intake
- Dietary Needs During Acute Mania:
- Clients in mania often have **very high metabolism** and **lack the focus** to sit and eat proper meals. Nutrition must be simple, mobile, and calorie dense.
- **Recommended food options include:**
- Handheld, high-calorie, high-protein foods such as:
- Chicken sandwiches
- Apple slices
- Hamburgers

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Classification: Internal Use

- Burritos
- Milkshakes or protein shakes
- Avoid:
- Meals requiring utensils or concentration, like:
- Steak dinners
- Salads with forks
- Oatmeal
- These foods are difficult for manic clients to manage due to restlessness and distractibility.
- Nursing Interventions During Acute Mania:
- Assign a **private room near the nurses' station** for close observation
- **Limit group activities** prefer **one-on-one structured interactions**
- Encourage **non-competitive, low-stimulation physical activities**
- Provide a **clear, consistent routine** with **firm boundaries and expectations**
- Use calm, simple, and direct communication
- Monitor for signs of **exhaustion, dehydration, or aggression**
- Appropriate Activities During Mania:
- Clients should engage in **low-stimulation**, **simple**, and **repetitive tasks** that promote structure and physical release without overstimulation.
- **Examples of suitable activities:**
- Sweeping the unit floors
- Folding sheets or towels
- Helping choose clothing for the day (promotes decision-making and routine)

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- **Avoid** group sports or competitive games like basketball, which can increase stimulation and agitation.
- Pharmacological Management of Mania:
- Common medications used to manage manic episodes include:
- **Lithium**
- **Valproic acid (Depakote)**
- These mood stabilizers help regulate neurotransmitters and reduce manic symptoms over time.

➢ **Bipolar II Disorder – Depressive Phase:**

- Clinical Presentation:
- The depressive phase of bipolar disorder is marked by a **deeply low mood** and lack of interest in life. It is associated with **low levels of serotonin, dopamine, and norepinephrine.**
- Common Symptoms of Depression in Bipolar Disorder:
- Persistent sadness, hopelessness, or emotional numbness
- **Anhedonia** (loss of interest or joy in previously enjoyable activities)
- Significant changes in **appetite or weight** (loss or gain)
- **Sleep disturbances**:
- Insomnia (difficulty falling or staying asleep)
- Hypersomnia (excessive sleeping)
- **Fatigue** and lack of motivation
- Feelings of **worthlessness**, guilt, or self-blame
- Difficulty **concentrating** or making decisions
- **Suicidal thoughts** or self-harming behavior

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- Nursing intervention For How treat the client with deep lows depression**:**
- **Always encourage** and invite the Client to participate to group activity.
- **Always assist** with ADLs to help the Client fight through that severe fatigue.
- Always sit with clients with mental health.

⇨ Diet For Client has depression:

- Provide small frequent meals that are high in calories and high in fluid.

➢ Suicide:

- **Suicide** is the intentional act of **self-harm** with the goal of ending one's life.
- It can occur in **multiple psychiatric conditions**, most commonly in major depression, bipolar disorder, schizophrenia, and substance use disorders.
- **Statements of despair** like I can't go on, I don't want to live I won't be a problem much longer.

◊ Suicide risk assessment:

- you must ask **Very specific questions** like:
- Have you had any thoughts about hurting yourself!
- Do you have any plane on killing yourself?
- Do you want to die?

⇨ Nursing intervention For Suicide Precautions:

- Remember any Client who is placed on suicide Precautions, we must do very Specific things:
- **Immediately** place a continuous one on one observation

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- Remove anything that is harmful in the room.
- If Suicide Risk Is Present:
- Do not leave the client alone
- Remove sharp objects, belts, shoelaces, glass, medications
- Notify the healthcare provider immediately
- Place on suicide precautions
- Document clearly and thoroughly: what was said, what was done

➢ Electro Convulsive Therapy (ECT):

- **ECT involves the application of electrical** currents to the brain to induce a brief seizure.
- This Client has not responsive to drugs like antidepressants so those Client will get ECT:
- Basically, inducing an electrical shock inside the brain.
- Electrical nodes are placed on the scalp to induce a Seizure.
- Each seizure lasts **15 to 20 Seconds.**
- And it's done over the Course of **Two to three times** a week **for 12 weeks' treatment total.**
- indications – When is ECT used?
- **Severe Major Depression**, especially with suicidal thoughts or psychotic features
- **bipolar disorder**, particularly depressive or manic episodes resistant to medication
- **Schizophrenia**, especially with catatonia or severe symptoms unresponsive to drugs
- When **medications are not effective** or **contraindicated** (e.g., in pregnancy or severe side effects)

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Classification: Internal Use

⇨ Nursing Responsibilities:

- Before the Procedure:
- Informed Consent:
- Ensure the client understands the procedure, benefits, risks, and alternatives.
- Pre-Procedure Assessment:
- Check medical history (e.g., cardiovascular issues, neurological concerns).
- NPO for 6–8 hours before procedure to prevent aspiration.
- Administer pre-anesthesia medication as ordered.
- Physical Prep:
- Establish an IV line for medication administration.
- Assess vital signs before and after the procedure.

⇨ We need to do a few things right before and after treatment because induce multiple seizure Can be a huge Safety risk:

- Assess the medical history and report any **recent MI, CVA Stroke**
- Airway risk so, no eating and no drinking from six to eight hours before the ECT« that's mean NPO.
- No anti Convulsive medication before treatment like **valproic acid** or **Carbamazepine.**

➢ **Eating disorder:**

◊ **First, Anorexia nervosa:**

- An eating disorder is characterized by
  - restricting food intake, an intense **fear of gaining weight**, and a distorted body image. Individuals with anorexia often see

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themselves as overweight, even when they are dangerously underweight.

⇨ Complications of Anorexia Nervosa:

- Starvation-related complications:
  - Organ damage (heart, kidney, liver), electrolyte imbalances, and death.
- Cardiovascular:
  - Hypotension, bradycardia, and arrhythmias.
- Osteopenia/osteoporosis due to
  - calcium depletion and low estrogen levels.
- Renal failure
  - due to dehydration and electrolyte imbalances.
- Mental health:
  - Anxiety, depression, obsessive-compulsive behavior.

⇨ What is the big Safety risk? What Kills First?

- **Malnutrition** So a sever Finding of malnutrition like:
- Extreme weight Loss and dehydration
- 25% below normal weight.

⇨ What is the Priority nursing intervention for client eating disorder?

- **Priority** is short term goals to fix malnutrition**:**
- **weight restoration** so, we increase the **calories intake**
- **Stay with the Client** during each meal one on one during

⇨ Manifestation:

- **Restricted diet** and fasting.
- **Excessive exercise** resulted in weight loss of less than 18.5 BMI.
- Lanugo (first terminal hair)

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- Hypotension, bradycardia, decrease body temperature, **fluid electrolytes imbalance**, **dehydratio**n, hypokalemia, and **metabolic alkalosis** which lead to **cardiac dysrhythmia.**
- **Amenorrhea** the client may stop menstruating due to decrease body fat and result **in low estrogen.**
- **Leukopenia** decrease WBCs result from malnutrition.

⇨ Priority:

- Restoring calorie intake and promoting gradual weight gain.

⇨ Criteria to consider for hospitalization:

- The Body weight is less than 75%
- Suicidal behavior.
- Any medical condition results from starvation.

◊ **Second, Bulimia nervosa:**

- **Eat a lot of food** at one time and then followed by **purging** basically Vomiting or even using laxatives, diuretics, Fasting, going without food for a few days
- Uncontrolled episodes of **overeating**, called **bingeing** this is followed by **purging** with methods such as **vomiting** or **misuse of laxatives** or water pills (diuretics).
- **Physical change** related to self-induced vomiting and dental caries.

⇨ Nursing intervention:

- **Encourage** clients to journal about feeling associated with food.
- Assess the client's readiness to change maladaptive behavior(purging)
- Monitor sign of **electrolyte imbalance.**
- Close monitor **of hypokalemia**.

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- Close monitor for purging at least one to two hours after meal.
- **For the Client for bulimia** one on one supervision after their meals to make sure not **purging after**.
- **Monitor Weights** Prior of oral intake and always encourage them that they are progressing toward a healthy weight.
- **Always check** for hidden bingeing and purging as hiding in the Trash or food wrappers under the bed.

➢ Post-traumatic stress:

- **Post-Traumatic Stress Disorder (PTSD)** is a mental health disorder triggered by experiencing or witnessing a traumatic event.
- This may include events such as **military combat, natural disasters, sexual assault, car accidents, or violent attacks**.
- PTSD is characterized by **persistent and severe psychological** and physiological responses to trauma.

⇨ Sign and symptoms:

- It can occur for one month to **several years after the event.**
- Depressed mood and anxiety
- **Insomnia**, fatigue, and impaired concentration.

⇨ Intervention:

- provide the client with available support (family, friend)
- Directly ask the client **about thought of self-harm**

⇨ Priority:

- Building trust by **activating listening and acknowledge** the client feeling anger and sadness.
- Recommended participate in trauma **psychiatric group**.

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- Encourage clients to use coping skills and controlled breathing exercise.

➢ **Intimate partner violence:**

- Physical, emotional, verbal, sexual, abusive behavior **caused by one partner against another.**
- **Abusive partner** may from jealousy and possessiveness
- **The victim** chooses to stay in relationship cause of **fear of life**, **finical or child.**
- Priority that talks with the client in **private room.**

⇨ Manifestation:

- **Sadness and bruises** in various stages of healing as belt and hand
- **Chronic pelvic pain** or odor from untreated sexual transmitted infection.
- Frequent visit ER.

⇨ Intervention:

- Assess the thought of self-harm.
- Collaborate with health care teams to develop safety plans.
- **Report, document, gather or take a photo** injury for the injury place.

◊ "Do not encourage clients to leave home" Why?

- In the context of intimate partner violence (IPV), this advice often means:
  - Do NOT immediately tell or pressure a victim to leave the home, especially if they are not ready or if it's unsafe to do so without a plan.
- Objective findings consistent with abuse or neglect to elderly client:
- Dehydration, malnutrition, weight loss

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- Poor hygiene, soiled bedding or clothing and pressure ulcer.
- Missing broken assistive device as eyeglass
- Medication withhold or expired.
- No jacket on cold days.

➢ Obsessive and compulsive disorder:

- OCD is a chronic mental health disorder characterized by:
- **Obsessions:** Recurrent, unwanted, intrusive thoughts, images, or urges that cause anxiety or distress.
- **Compulsions:** Repetitive behaviours or mental acts performed in response to obsessions, aimed at reducing anxiety.
- Assessment Findings:
- Intrusive thoughts (e.g., fear of contamination, harm, or symmetry).
- Ritualistic behaviours (e.g., excessive handwashing, repeated checking).
- Feelings of being out of control.
- Insight is often present (the client may know the thoughts/behaviors are irrational).
- Nursing Interventions:
- **Use Positive Reinforcement:** Encourage and reward the client for avoiding ritualistic behaviors.
- **Encourage relaxation techniques** such as deep breathing to reduce anxiety.
- **Do not interrupt compulsive behavior suddenly** instead, gradually set limits and redirect.
- **Remove harmful objects** if there's a risk of self-harm.
- **Allow time for rituals initially, then gradually decrease.**

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Classification: Internal Use

- **Pharmacological Treatment:**
- **First-line medications:**
  - *Selective Serotonin Reuptake Inhibitors (SSRIs)*
    These improve mood, reduce anxiety, and help control obsessive thoughts.
- **Examples:**
- **Fluoxetine (Prozac)**
- **Sertraline (Zoloft)**
- **Citalopram (Celexa)**
- NCLEX Tip:
- Focus on **safety**, **therapeutic communication**, and **gradual behavioural modification**. Avoid forcing the client to stop rituals suddenly as it may increase anxiety and resistance.

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Classification: Internal Use

Child Health

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➢ **What is the best way to teach all those Childs?**

⇨ **From Zero to 3 years old basically infant and Toddler (toddler hood):**

- **infants and toddlers (from birth to around 3 years old)** learn best in the **moment, through calm, simple communication**.
- At this age, **they do not understand complex explanations** or anticipate future events well.

◊ Example

⇨ We are doing a Foley Catheter insertion for an 18-month-old what do you do for teaching:

◊ **Stay calm and gentle:**

- Use simple, soothing language, describe **what's happening now**, in terms they understand.
  - "We're cleaning your belly. It might feel a little cold."
  - "You might feel a little pressure. You're doing so well.
  - "Simply, teach him while you are doing the procedure.
  - **Avoid scary or complex terms**, don't say things I will do an IV or I will put this big tube inside you.

⇨ **Preschoolers basically from 3 to 6 years:**

◊ He has **Preoperational thinking**:

- **Their thinking is:**
  - Very imaginative.
  - Magical (they **believe their thoughts** can affect reality).
  - Unable to **understand cause and effect**.

◊ How to Teach Them:

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Classification: Internal Use

- **Teach them a few hours before** the procedure (2–4 hours before is ideal).
    - **If you tell them too early,** they may become **anxious and let their imagination** create scary thoughts.
    - Teach the child what we are going to do, use **Pictures**, Stuffed animals, or tell him **I will do this procedure** and show him by Pictures.

⇨ **Seven to 11 Years old:**

- They love rules and routines.
- **Their thinking is logical** and **clear,** but they don't understand complex or abstract ideas yet.
- If you tell them something, they expect it to happen **exactly as you said.**

◊ How to Teach Them:

- Teach them **a few days before (2–3 days in advance is ideal)** to help them **prepare mentally.**
- Be honest and clear with them.
    - Say: "**You'll get a small needle to take some blood**. It will feel like a quick pinch."
    - **Don't say:** "You won't feel anything" if they might feel something.
- The child can understand principles of **cause and effect. But, when you are teaching him something** there is only **one way of doing** something because which means if You Show them How to do something that one time, they are going do it that **same exact way** every single time they **Can't switch injection location**.
- They don't know How to **manage their own** care.

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⇨ **From 12 - to 15 years old. (Adolescent) (Teenager)**

- **They have formal operational thinking**:
  - which means they **can think more abstractly,** begin to show more advanced cognitive abilities, start **thinking about the future and what will happen** if they do (or don't do) something.
  - They **want to have their own opinions** and might ask why things are happening.

◊ How to Teach Them:

- Teach them **a few days in advance (2–3 days before).**
- Be honest and clear but also keep their **feelings in mind.**
  - **Say:** "This procedure might hurt a little, but it will help you feel better."
  - **Explain why:** "This is necessary to help you stay healthy in the long run."
  - **Let them ask questions and share their thoughts:** "Do you have any questions? What do you think about this?"
  - **Give them choices: "**Would you prefer to do this in the morning or afternoon?"
  - **Give them some control:** If they understand what's going on, let them be part of the decision.
  - **They care a lot about how others see them,** so they can be sensitive.
  - They Can **switch location injection,** and They understand Thought process.

➢ Toilet training:

- Beginning during toddler age from **18** months to **24** months.

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Classification: Internal Use

- Anything **before 18 months the** body can't be able to control the bowels.

◊ The Following Factors to show readiness if the child is ready to do the toilet training So How do we determine readiness?

- Can the **child Perform** simple tasks?
- Can they **walk and sit** on the toilet?
- Can they **remain on the toilet** or basically in one place for Five to eight minutes?
- Are they able to pull clothes up and down?

⇨ What happens If the child makes a potty mistake?

- **Avoids Punishing** the child. Never Punish For making mistakes simply, clean it.

➢ **Play Types:**

- For little children, Play is an **integral Part of the brain** is a primary role for child.
- During hospital Stay Play serves as a **big Factor to relieve stress and anxiety.**

◊ The Top nursing considerations for Safety:

- **Airway**, you must see if the toy is a choking hazard. So, any child under 4 years **old has no small toys**. Huge Choking Risk, no metal toys near oxygen because use any spark Can Cause a Fire
- **infection** We need to prevent it, use hard toys for any Client who is Immunosuppressed, or Chemo treatment and We must put them in their own room**.**

⇨ **From Zero to Six Months:**

- The Best Toy for them is **anything Softer or large as Play music**.

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Classification: Internal Use

- Loves **Solitary Play**, they play by **themselves**.
- Always Choose a Toy that Stimulates **Both motor**, Sensory think about touching, Feeling, or moving arms.
- Example:
    - A baby reaching for a rattle, or a toddler playing with a soft ball.

⇨ **From 6- to 9-month:**

- Love **Cover and uncover toy**, like Peekaboo, jack inbox, you are **hiding eyes behind your hands** and then you are uncovering and covering.

⇨ The worst thing to do:

- Give a child something that they can **strangle themselves** with as Music mobiles.
    - Why? Babies at this age **put everything in their mouths**. If a toy has strings or cords, it can be a choking or strangulation hazard.

⇨ **Nine to 12 months:**

- Always choose any toy that **talks back to the child**, Talking Toy, Talking books.
- They are **learning, Sensory motors.**
- This age is a **Purposeful Play** like, Hard Plastic blocks, like. building something, Sorting, stacking, **making a construction.**
    - Purposeful play:
        - is any **activity that helps a** child **practice and develop specific** skills or knowledge. It can be as simple as **building a block tower**, and it doesn't have to be structured or **goal oriented.**

◊ **One to 3 years old (Toddler age):**

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- **Push-Pull Toys:** Toys like wagons or carts that toddlers can push or pull help with balance and coordination.

◊ Growth Motor Skills from one to 3 years old:

- **Best Toys:** Push-pull toys like wagons.
- **Play Type:** Parallel play, playing next to others, not with them.
- **Physical Skills:** Running, jumping, but limited finger control (no scissors or coloring pencils yet).
- Toddlers are getting more active, but their fine motor skills still need some time to grow!

◊ **Preschoolers from 3-to six years:**

- **Physical Skills:** Running, jumping, and better hand control (using crayons and scissors).
- **Language:** Speaking in full sentences and understanding simple rules.
- **Social Skills:** Playing with others, sharing, and understanding emotions.
- Preschoolers are rapidly developing, becoming more independent, social, and creative at this stage!
- **Cognitive Skills:**
  - Pretend play, problem-solving, and early math.
  - They Love **Pretend play:**
  - is a fun way for your child to **connect with the people** and **world around them**. Whether your child likes **playing with dolls, toy animals, trucks, dress-up clothes**, Puppets tea Parties, **imitating adults.**

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◊ **From 6 years to 12 Years:**

- They Love **Creating, Competition,** Collecting like baseball Cards.
- also learning Creativity like logos, Painting, or drawing

⇨ What can you do to encourage creativity?

- Encourage arts and Crafts, create by themselves.
- Do not give him something that is already done.
- Always give them a blank Piece of Paper.
- Collecting Something like Pokémon.
- Competition like Monopoly.

◊ **From 12 to 18 years adolescents:**

- These are **Teenagers** that are rebels Without a Cause.
- The big thing is that social media is taking hold.
    - **They Learn Peer group socialization**, **in this period let them** Meet with Friends, Texting Friends, Taking with Friends and always encourage these clients to meet With Friends and **to do Peer group socialization.**

➢ **Developmental Milestones:**

◊ **Start With Two to Three-month:**

- Start **kicking their legs** and **start raising their** head in a prone position.
- Have Less **head lag.**
- **Sucking** Their toes because she is learning sensory motor.
- She always smiles specially When See Family Faces.

◊ **Four- to Five-month-old:**

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Classification: Internal Use

- **No More head Lag** We must report the provider in case of found head lag should be No more head lag **around Four**.
- Concerning:
    - If head lag persists after 4 months, it may be a sign of developmental delay or a neurological issue.
- They are learning to grab **objective Voluntarily.**
- They can **grab a rattler** and have diminished motor reflex.

◊ **From Six to 9 months:**

- The birth **weight doubles by month six.**
- They can **roll from their back** to Their **Front and even sit up** unsupported and Push Themselves up.
- They can also **hold baby bottles** at around seven months.
- They Can **transfer objects** from one hand to other.
- **They start babbling** a few words like **mom, dada.**
- They can response to **their own name and babble** a few Words like Momo, Doda if they can't they have Speech delays
- **Separation anxiety** begins at **six months.**
- **Separation anxiety**:
    - is a condition characterized by **extreme fear** or *distress* when separated from an emotional attachment, such as a **parent or a place they feel safe.**

◊ **From 10 to 12 months old:**

- Around 12 months learning How to take their **first few steps** While **holding a hand.**
- **Birth weight Triples.**

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- Transfer objects from one hand to other hands more smoothly.
- They are using their **10 Fingers.**
- They can use **Pincer grasp** to Pick up small Food or other things.
- Can Fully grasp a rattle or grab a dull by the arm.
- They **Can sit down** from **Standing Position.**

⇨ Speech at the age of 10 to 12 months old:

- They are learning Vocalization. So, that's Why **taking toys, and talking** books are the best because They Start to learn How to Vocalize and speak.

⇨ Fine Motor skills at the age of 10 to 12 months old:

- Using a **pincer grasp**, they are basically using two Fingers for picking.
- They are Learning How **to build blocks,** basically **two block towers**, but **unsuccessfully.**
- They are attempting to turn Pages a book like **swipe the whole Pages** in the book.
- Language: it develops even Further; they must **know 5 Words** in their Vocabulary at 12 months.

◊ **18 Month:**

- They Can **Walk up and down stairs** while **holding a hand.**
- Learning How to **throw a ball,** as well as Jumping in Place with both feet.
- Learning How to **turn Pages** more smoothly in a book.
- They Can **build a Tower** using Four blocks and **scribble With Crayons.**
- No Finger dexterity, They Can be able to **sit down.**
- **Cannot use scissors** or coloring Pencils.

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⇨ Speech:

- They have 10 words or more in their Vocabulary.
- Know How to Follow Commands.

◊ **Two Years:**

- They are learning How to walk on their own **with two legs.**
- They can **walk up and down** stairs independently, but **only one step** at a time.
- They also **know two names, First Name Last Name**
- They Should have learned **toilet training.**
- Can draw **Vertical lines.**

◊ **Three years:**

- They are Learning How to Jump Forward and How to use a tricycle with 3 wheels.

⇨ Fine motor skills:

- They can **draw circles** and **spoon feed** trans themselves (also Can draw Shapes)
- They are Learning How to **use scissors** as well as holding **Crayons** win their Fingers, or even their fist.

⇨ Speech:

- **Can Put together three-to-four-word sentences** and they love asking why and They Can't Follow Complex Instructions.

◊ **Age Four:**

- They are learning how to **skip one foot** and catch a ball ground half the time.

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Classification: Internal Use

⇨ Fine motor skills:

- Can draw **Four Sides to a shape**, like a Square or even **rectangle.**

➢ **Pediatric Physical assessment:**

⇨ **Assessing a Child:**

- **Always interact** with the Parent First.
- **Always encourage** the parent to be involved as having the child on Parent Lap and always use simple Communication
- **Keep equipment** out of the sight of Child because we don't want Child scare with unneeded anxiety.
- Keep least invasive Frist to most invasive last.

◊ Example:

- If we have a little kid on their mother's lap, then where do we start assessment?
- **Always Start by observing** the child we Can Count respiratory rate by looking at the child, not even touching him.
- **Then we** can move closer to Just touch For a Pulse. Finally, when needed, we can pull out that big scary blood Pressure Cuff.
- The worst you can do put the Blood Pressure first.

➢ **Physical assessments:**

- Remember Growth is the biggest thing for Safety.
- **Doubled birth weight** by six months and **tripled birth weight** by 12 months. You must report if you didn't Find that.

◊ **Nutrition:**

- **From Zero to 12 months:**

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- **Solid Foods** begin **between Four to six months** We are introducing one Food at a time and any one **new Food Per Week.**

⇨ The Worst you can do from (Four to six months):

- Use **Cow milk.**

⇨ **Head assessment:**

- **For Fontanels**, it is bulging at rest it's Indicate there is something wrong Maybe **infection** or **increased ICP. Any high Pitch** cry is not good, this is a big indication ' of deadly increased; ICP, or even brain damage.
- The only Time that Fontanels is bulging during **crying or Coughing**.

⇨ What does Sunken fontanel mean?

- Means D**ehydration** or even **Fluid Volume defect.**
- **A sunken fontanel** occurs when **the soft spot on a baby's skull** becomes deeper than usual. One major cause is dehydration.

⇨ **Respiratory distress:**

⇨ There are a few certain for a little baby respiratory distress:

- Nasal Flaring, accessory muscle we and even abdominal breathing, with a nonproductive Cough.

⇨ What is the First thing You will do in case of respiratory distress?

- Assess the respiratory Pattern, and Frequency and the quality of the cry.

➢ **Reflexes:**

⇨ Babinski.

- **When stroking the bottom** of the foot or the Sole of the foot, The big toe bonds backwards and other toes Fan out. One of the normal reflexes in infants and in children **up to 2 years old.**

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Classification: Internal Use

⇨ **From zero to four months:**

- We see rooting reflexes or sucking reflexes by stroking the side of the cheek on any infant.

⇨ **Tonic neck reflex:**

- **When the baby is lying down** and their head is turned to the right or left, **the corresponding arm extends** while the other arm bends next to their head.

➢ **GI assessment:**

◊ Meconium:

- **Timing:** Passed within the first 24–48 hours after birth.
- **Color:** Black or very dark green.
- **Texture:** Thick and sticky, like tar.
- **Source:** Made from materials the baby swallowed in the womb, such as amniotic fluid, mucus, and skin cells.

◊ Transitional and Normal Stool:

- **Day 2–4:**
  - The stool starts changing from meconium to a lighter green or yellowish-brown (transitional stool).
- **After Day 3–5:**
  - Breastfed baby: Yellow, seedy, soft or runny stool. Formula-fed baby: yellow brown, more formed and pasty stool.
  - **Bloody mucus** in a newborn diaper this is **completely normal** for only newborn always **continuous monitor the color**, amount, and consistency.

◊ **Burns:**

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Classification: Internal Use

- **We always apply sunscreen** for at least 15 minutes or more before going outside and make sure to reapply every two hours or three while out of the sun.

◊ **Drowning safety:**

- We never leave the child alone near the body of water.

⇨ Crib safety:

- Infants are always to be placed on their back or basically **supine position.**
- **Never on their stomach** or basically prone position. In case you put them in prone position leads to SIDS that **sudden infant death syndrome.**

⇨ How about going to bed with baby bottle is it safe?

- **This is not safe** because formulas have sugar in it so too much sugar can lead to **dental cavities** or tooth decay. All that sugar will corrode the teeth.

➢ **Schoolchildren:**

- **Any school age child** or even **adolescent child** we can do physical assessment just like an adult.
- **Explain the results** of the exam to the child but always **respect privacy.**

⇨ You are caring for an 11-year-old client with abdominal pain. What best actions during a physical assessment should you perform?

- Complete a **head-to-toe assessment** the same as an adult.
- **explain the results of the** exam to both parents and child.
- **Ask the child to describe** the primary symptoms that's subjective assessment.

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- **Respect the request to examine** the child without the guardian present.

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2/ Child Health (CARDIO)

Classification: Internal Use

➢ Basic life support for infants:

◊ Check Responsiveness:

- Gently tap the infant's foot or shoulder.
- Shout their name to see if they respond.

◊ Call for Help:

- If unresponsive, shout for help.
- If you are alone, provide 2 minutes of CPR before calling emergency services.

◊ Check Breathing:

- Look for **chest movement, listen** to breathing sounds.
- If not breathing or only gasping, begin CPR.

◊ Chest Compressions:

- **Position:** Two fingers in the center of the chest, just below the nipple line.
- **Rate:** 100–120 compressions per minute.
- **Depth:** About 1.5 inches (4 cm).
- **Ratio:** 30 compressions to 2 breaths (1 rescuer) or 15:2 (2 rescuers).

◊ Rescue Breaths:

- Cover the infant's **nose and mouth with your mouth**.
- Give gentle breaths (1 second each) just enough to make the chest rise.
- Avoid over-inflation.

◊ Use of AED (Automated External Defibrillator):

- Use pediatric pads if available.
- Place **one pad on the chest**, one **on the back** (if pads are too large).
- Follow AED prompts.

◊ Continue CPR:

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Classification: Internal Use

- Repeat cycles of compressions and breaths until help arrives or the infant responds.

◊ Recovery Position (if breathing resumes):

- Place the infant on their side with the **head slightly tilted back** to keep the airway open.

◊ Most important points:

- **The Rescuer** should check the infant's **Brachial pulse for no longer than 10 seconds.**
- During **unwitnessed** (S**ingle rescuer**) **should activate emergency** response team **then** provide two minutes **CPR at a rate of at least 100 compression/ min** before retrieving **AED (automated external defibrillator)**.
- **In case there is** only an **AED for adults,** put one pad on **chest** and another on the **back**
- **The Rescuer should deliver** chest compression depth **equal one third of chest** anterior / posterior **diameter 4 cm** and allow for **recoil between compresses**.
- The Rescuer should perform compression **two finger** or **two thumb** on **the sternum, below the nipple line.**
- **Single rescuer** 30 compression: 2 breathe.
- If **two rescuers** 15 compression: 2 breathe.

➢ **Kawasaki disease:**

- **Kawasaki disease is an** acute, self-limited vasculitis (inflammation of blood vessels) that primarily affects children under 5 years of age.
- It can lead **to serious heart complications**, especially coronary artery aneurysms, if untreated.

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- Most often affects **heart arteries** in children under 5 years. Those **arteries supply** oxygen-rich blood to the heart.

  ⇨ Manifestation:

- **Lymphadenopathy** (Lymph nodes **become swollen** in response to illness, infection, or stress.)
- **Mucositis** (inflammation of the **mucous membranes** that line your mouth and digestive tract)
- **Maculopapular rash** (flat and raised lesions on the skin)
- **Strawberry tongue** (swollen, red, bumpy appearance, like a strawberry).
- High fever, swollen hands and feet with skin peeling, and red eyes and tongue.

  ⇨ Treatment:

- **IVIG intravenous immunoglobulin**.
- **Aspirin** to **prevent** Coronary artery aneurysm (**abnormal dilatation** of part of the coronary artery). However, **aspirin** is not recommended risk for **Reye syndrome**.

  ⇨ Discharge teaching:

- Monitor client fever for recurrence

  ⇨ Complication:

- May develop **cardiovascular disease (**coronary artery aneurysms and occlusion**)**
- IVIG can lead **to fluid overload** and **tachycardia.**
- Close monitor sign of heart failure (gallop heart sound **and decrease** urine output**).**

➢ Congenital Heart Disease (CHD):

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- **Congenital heart disease** refers to one or more structural problems in the heart that are present at birth.
- These defects **can affect how blood flows** through **the heart and to the rest** of the body.

⇨ Possible Defects Include:

- A hole in the heart wall (septal defects).
- Abnormal blood vessels (too many, too few, or misdirected).
- Malfunctioning heart valves.
- Some defects are mild and may cause no symptoms, while others are life-threatening and require early treatment.

⇨ **Types of Congenital Heart Disease:**

◊ CHD can be classified into two main groups:

⇨ **1-Cyanotic CHD:**

- These defects result **in low oxygen levels** in the blood. Babies often appear blue or cyanotic.

◊ Common Cyanotic Defects:

- Tetralogy of Fallot (TOF).
- Left-sided obstructive lesions (e.g., Hypoplastic Left Heart Syndrome)
- Right-sided obstructive lesions (e.g., Pulmonary Atresia)

◊ TOF is a combination of four defects:

1. **Ventricular Septal Defect (VSD):** A hole between the lower chambers.
2. **Pulmonary Stenosis:** Narrowing of the pulmonary valve or artery.
3. **Overriding Aorta:** The aorta is **shifted and receives** blood from both ventricles.

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Classification: Internal Use

4. **Right Ventricular Hypertrophy:** Thickened heart muscle on the right side.

⇨ Complications of TOF:

- Chronic hypoxia (low oxygen)
- Poor feeding and failure to thrive
- Heart failure
- Infective endocarditis
- **Polycythemia:** High red blood cell count, increasing the **risk of stroke**

◊ Preventive Measures:

- **Antibiotic prophylaxis** is recommended before surgery or dental procedures until surgical correction is completed.

◊ **Tet Spells (Hyper cyanotic Episodes):**

- Classification: Complication of **Cyanotic CHD**, especially Tetralogy of Fallot.

◊ Manifestations:

- Sudden deep and rapid breathing
- Blue lips and tongue (cyanosis)
- Clubbing of fingers
- Triggered by crying, feeding, or stress

⇨ Management:

1. **Place the baby** in a knee-chest position
2. Administer **oxygen**
3. If unrelieved, morphine may be prescribed

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Classification: Internal Use

⇨ Prevention:

- Use **pacifiers to reduce** crying
- Feed in small, frequent **amounts**
- Maintain a calm, quiet environment
- Avoid unnecessary **repositioning at night**
- Keep the infant warm and comfortable.

⇨ **2-Acyanotic CHD:**

- These defects **do not typically cause cyanosis** but still affect normal blood flow.

◊ Examples Include:

- Patent **Ductus Arteriosus (PDA)**
- Atrial Septal Defect (ASD).
- Atrioventricular Canal Defect (AVCD).
- Ventricular Septal Defect (VSD)

◊ **Patent Ductus Arteriosus (PDA):**

- **A blood vessel** called the **ductus arteriosus** fails to close after birth.
- This allows blood to flow **from the aorta to the pulmonary artery** Leads to increased **blood flow to the lungs**.

⇨ Effects:

- Blood flows from the aorta back into the lungs
- Can cause **cyanosis if severe**

⇨ Signs & Symptoms:

- Continuous murmur (heard in both systole and diastole)
- Tachypnea (fast breathing), tachycardia

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- Sweating, poor weight gain.
- Fast breathing, poor weight gain, and machine-like murmur. Often treated with medicine or a catheter procedure.
- ***Treatment:***
- Medications (e.g., indomethacin)
- Catheter or surgery

⇨ Causes/Risk Factors:

- Genetic conditions
- Maternal rubella infection **during pregnancy**
- Neonatal respiratory distress syndrome.

◊ **Atrial Septal Defect (ASD):**

- ASD is a congenital heart defect where there's a **hole in the atrial septum**, the wall that separates the **right and left atria.**
- This causes a left-to-right shunt, allowing oxygen-rich blood to flow back to the right side and lungs.
- Clinical Signs:
- Systolic murmur: due to increased pulmonary blood flow.
- Split second heart sound (S2): caused by delayed closure of the pulmonary valve.
- Fatigue during feeding.
- Tachypnea (rapid breathing).
- Poor weight gain.
- NCLEX Critical Point:
- The nurse should report a severe diaper rash before cardiac catheterization."

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- Why?
- Because a severe diaper rash increases the risk of bloodstream infection (bacteremia) during or after the catheterization procedure.
- On NCLEX, if you see:
- A child with ASD.
- Scheduled for catheterization.
- Has a severe diaper rash.

⇨ **Atrioventricular Canal Defect (AVCD):**

- Definition:
- A complex heart defect involving:
  - A hole in the centre of the heart
  - Abnormal formation of the heart valves

⇨ Common in:

- Children with Trisomy 21 (Down syndrome)

⇨ Clinical Manifestation:

- Loud murmur (does not require urgent action if vital signs are stable).

⇨ Nursing Considerations:

- Monitor growth and feeding tolerance.
- Prepare the family for possible **surgical repair**, typically done in infancy.
- **Educate parents** about signs of worsening heart failure (e.g., sweating during feeds, respiratory distress).

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Classification: Internal Use

⇨ Ventricular Septal Defect (VSD):

- VSD is a **congenital heart defect** where there is a **hole between the two lower chambers** of the heart (the right and left ventricles).
- Pathophysiology:
- Causes a **left-to-right shunt**, meaning oxygen-rich blood from the left ventricle flows into the right ventricle.
- This leads to **increased blood flow to the lungs**, which can overwork the heart and lungs.
- Clinical Manifestations:
- **Loud, harsh systolic murmur** (usually heard at the lower left sternal border).
- **Tachypnea** (fast breathing).
- **Poor feeding** and **failure to thrive**.
- **Signs of congestive heart failure** in large defects.
- Diagnosis**:**
- Echocardiogram (to visualize the defect).
- Chest X-ray and ECG may show signs of heart enlargement.
- Treatment:
- **Small VSDs** often close **spontaneously** within the first year of life.
- **Larger VSDs** may require:
  - **Diuretics** and **digoxin** for symptom control.
  - **Surgical repair** or **catheter closure** if symptomatic or causing heart failure.
- Nursing Considerations:
- Monitor for signs of **respiratory distress** and **poor weight gain**.
- Educate parents about feeding strategies (e.g., small frequent feedings).

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- Prepare for **surgical correction** if the defect doesn't close naturally.
- Watch for signs of **congestive heart failure**.

◊ General Signs of Concern in CHD:

- Chronic hypoxia
- Central cyanosis: Blue lips and tongue during crying or feeding
- Systolic murmur (may indicate pulmonary stenosis)
- Increased respiratory rate during feeding
- Signs of fluid overload (periorbital swelling, weight gain, pale or cold extremities).
- Decreased urine output (dry diapers).

➢ **Acute pharyngitis:**

- **Acute pharyngitis is an infection of the throat (pharynx) caused by viruses or bacteria (commonly Group A Streptococcus).**
- Key Characteristics:
- **Rapid onset of sore throat**
- **Red, inflamed throat with or without white patches (exudate)**
- **Painful, swollen cervical lymph nodes (neck)**
- **May be accompanied by fever and headache**
- Complications if Untreated:
- Glomerulonephritis
  - Inflammation of the kidney's filtering units (glomeruli)
- May cause blood in urine, swelling, and high blood pressure
- Rheumatic Fever
- Can damage heart valves
- Occurs especially after untreated streptococcal throat infections

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Classification: Internal Use

- NCLEX Nursing Interventions:
- Administer antibiotics (e.g., penicillin) if bacterial cause confirmed
- Encourage rest and soft diet
- Advise warm saltwater gargles
- Teach clients to avoid sharing cups, bottles, or utensils
- Encourage full completion of antibiotics course
- Client Education:
- Replace toothbrush after 24 hours of starting antibiotics
- Monitor for symptoms of complications (e.g., dark urine, joint pain, fever)
- Return if symptoms worsen or persist after 48–72 hours

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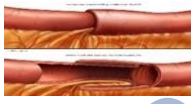
3-Gastrointestinal

Classification: Internal Use

➢ Intussusception:

- A condition in which a portion of the intestine folds into another section, like a telescope.



◊ This causes:

- **Bowel obstruction**
- **Decreased blood flow** to the affected area
- Potential **necrosis**, **infection**, or **perforation** if untreated

◊ Most Common In:

- Infants and toddlers (usually **ages 3 months – 3 years**)
- More common in **males**
- Classic Clinical Manifestations:
- **Sudden, severe, crampy abdominal pain**
- **Inconsolable crying** with drawing of knees to chest
- Episodes of pain alternating with lethargy
- **"Currant jelly stool"** (blood and mucus in stool) – a key sign
- **Vomiting** – may progress from non-bilious to bilious
- **Sausage-shaped abdominal mass** (may be felt in the right upper quadrant)

◊ Diagnosis:

- **Abdominal ultrasound**"
- **Air or barium enema**: Both **diagnostic and therapeutic**

⇨ Risks:

- **Bowel ischemia** (loss of blood supply).
- **Bowel perforation**.
- **Peritonitis**, which presents with:
  - **Fever**
  - **Abdominal rigidity**

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- **Rebound tenderness**

⇨ Nursing Interventions:

- **Administer IV fluids** to prevent dehydration.
- Keep the child **NPO** (nothing by mouth).
- **Prepare for air or contrast enema**:
  - A **water-soluble contrast enema** (with iodine) is both **diagnostic and therapeutic**.
  - Successful reduction leads to **passage of soft, brown, semi-formed stool**.

⇨ Parenta Teaching:

- Inform that the **cause is often unknown**.
- **Explain** that **surgery may be needed** if the **air enema fails**.
- **Reassure** that recurrence is **low** after treatment with either air enema or surgery.

◊ Important NCLEX Tips:

- "Currant jelly stool" is a **classic red flag**
- Sudden **relief of symptoms** may indicate **bowel perforation** — emergency!
- **NPO** status, IV fluids, and monitoring vital signs are immediate nursing actions
- Prepare for possible **emergency surgery**

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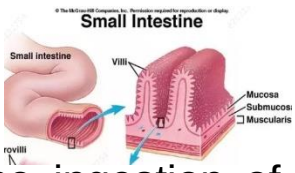

➢ **Celiac disease:**

- a chronic **autoimmune disorder** triggered by the ingestion of gluten (a protein found in wheat, rye, and barley), leading to damage of the small intestinal villi and malabsorption.

- Occurs when the body has an **immune reaction to gluten**, that's a **protein found** in wheat, barley, and rye.

⇨ Manifestation of malabsorption:

- Chronic diarrhea or constipation
- Abdominal bloating and pain
- Weight loss or failure to thrive
- Fatigue
- Irritability or mood changes
- Skin rash (dermatitis herpetiformis)
- Iron-deficiency anemia

⇨ Treatment:

- Lifelong gluten-free diet.
- Avoid all foods containing wheat, barley, and rye.
- Read food labels carefully.
- Nutritional supplements may be needed initially (iron, calcium, vitamins).

⇨ Nursing Considerations & Education:

- Teach parents/patients how to identify hidden gluten in foods and products.
- Monitor growth and nutrition in children.
- Encourage label reading and meal planning.
- Providing support adjusting to a gluten-free lifestyle can be challenging.

➢ **Irritable bowel sound:**

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Classification: Internal Use

- IBS is a **functional gastrointestinal disorder** characterized by **abdominal pain and changes in bowel habits** (diarrhea, constipation, or both), without structural damage to the intestines.

⇨ Key Characteristics:

- IBS does not cause permanent damage to the intestines. It does not lead to serious diseases like cancer, but it affects quality of life.

⇨ Symptoms of IBS:

- Cramping
- Abdominal pain
- Bloating
- Excess gas
- Diarrhea, constipation, or alternating between both
- Note: Symptoms can vary in severity and may come and go.

⇨ Symptom Triggers:

- Certain foods, such as:
  - Wheat
  - Dairy products
  - Citrus fruits
  - Beans and cabbage
  - Milk
  - Carbonated drinks
- Stress:
  - Stress doesn't cause IBS, but it can worsen the symptoms.
  - Many people report flare-ups during periods of emotional distress.

⇨ Management & Treatment (No cure, but symptoms can be controlled):

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- Dietary changes:
  - Avoid trigger foods (fatty foods, caffeine, carbonated drinks).
- Add probiotics and psyllium fiber
- Lifestyle changes: Exercise regularly.
- Get enough sleep.
- Drink plenty of water.
- Stress management: Practice relaxation techniques (deep breathing, yoga, meditation). Talk about problems — therapy or support groups can help.

➢ Cleft palate:

- Cleft palate is a congenital malformation where the **roof of the mouth (palate)** does not fully fuse, creating an opening between the oral and nasal cavities. This leads to feeding difficulties due to impaired sucking and risk of aspiration."

⇨ Causes & Risk Factors:

- Genetic and environmental factors.
- Family history of cleft palate or lips.
- Maternal smoking, alcohol use, certain medications during pregnancy.
- Nutritional deficiencies (e.g., folic acid).
- Feeding Interventions:
- Use **special nipple/bottle**
- Hold infant **upright during feeding**
- **Burp frequently**

⇨ Symptoms/Complications:

- Difficulty feeding (especially in infants)

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- Nasal-sounding speech
- Ear infections and possible hearing loss
- Dental problems
- Speech and language delays

⇨ Nursing Interventions & Education:

- Use special feeding bottles/nipples.
- Monitor for signs of aspiration.
- Educate parents on post-op care (no pacifiers, protect surgical site, maintain oral hygiene).
- Provide emotional support to family.
- Avoid **hard objects such as tongue depression and pacifier.**
- At risk for malnutrition, aspiration, and speech delays
- Surgical repair typically done by 12–18 months
- Use elbow restraints post-op to protect surgical site

➢ **Cystic fibrosis:**

- An **Inherited autosomal recessive disorder**

◊ Causes:

- **Thick, sticky mucus** to build up in:
- **Lungs** → Airway obstruction and infections
- **Pancreas** → Prevents enzyme release → **Pancreatic insufficiency**
- **Other organs** (liver, intestines, reproductive system)

◊ Respiratory Complications:

- Thick mucus blocks airways
- Leads to **chronic infections**, and **decreased lung function**
- Pancreatic Insufficiency:
- Mucus blocks pancreatic ducts

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- Prevents enzyme secretion
- Requires **pancreatic enzyme replacement**

◊ Treatment & Nursing Care:

- **Chest physiotherapy**:
- Manual percussion
- **Nebulized medications**:
- **Mucolytics**: hypertonic saline
- **Bronchodilators**
- Pancreatic Enzyme Replacement:
- Take **with every meal/snack** (within 1 hour)
- **Swallow whole**, or sprinkle on soft food (if needed)
- **Do NOT chew** (can cause mouth irritation)
- Diet Recommendations:
- **High-calorie**, **high-protein** diet
- **No fat restrictions** (fat needed due to malabsorption)
- May need **fat-soluble vitamin supplements (A, D, E, K)**
- Patient Teaching – NCLEX Focus:
- Adhere to **daily chest physiotherapy**
- Take **enzymes properly** with meals
- Recognize early signs of infection: ↑ cough, fever, fatigue
- Stay up to date on **vaccines** (especially **influenza** & **pneumococcal**)
- Encourage **physical activity** to enhance lung function
- **Psychosocial support**: CF is lifelong and emotionally demanding

➢ **Iron deficiency anemia in Children:**

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- **A common type of anemia** is a condition in which blood lacks adequate healthy red blood cells (**Red blood cells** carry oxygen to the body's tissues).

  ⇨ There are many causes:

- **Premature birth**
- Insufficient dietary intake of iron.
- Delay introduction of **solid foods**
- Consume **cow milk before age one** year (Fills the stomach and reduces intake of iron-rich foods, Still contains very little iron).
- Excessive intake of cow milk is from one to three years (Is low in iron and can cause intestinal blood loss).
  - **0.47 to 0.71 liters per day maximum = 16 to 24 oz/day**

  ⇨ Prevention & Education:

- Introduce **iron-rich complementary foods** around 6 months of age (e.g., pureed meats, iron-fortified cereals).
- Limit cow's milk after age 1.
- Consider **iron supplements** for at-risk infants as recommended by a pediatrician.
- Educate caregivers on balanced nutrition and early feeding practices.

➢ Encopresis:

- a condition in children where they repeatedly **pass stool (poop) in inappropriate places**, such as in their clothes, after the age when they should be toilet trained usually after age 4.

  ⇨ Common cause:

- The most common cause is **chronic constipation**, which leads to:

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Classification: Internal Use

- Hard, painful stools that the child avoids passing.
- Stool buildup in the colon.
- Liquid stool leaking around the hard mass without the child being fully aware (involuntary soiling).

- **Other possible contributing factors:**
- Emotional stress
- Toilet training issues
- Changes in routine (e.g., starting school, new sibling)

⇨ Management:

- **Provide the child** with a foot stool as raise the client's knee above the level of hip.
- **Schedule regular** toilet time after meal
- **Gradually taper** down of use stool softener.

➢ **Hirschsprung disease:**

- a condition that affects **the large intestine (colon)** and causes problems with **passing stools.**
- The condition is present at birth (congenital) as a result **of missing nerve cells in the muscles** of the **baby's colon**. Without **these nerve cells** which **stimulate gut muscles** to help move contents through the colon, **the contents** can back up and cause blockages in the bowel.

⇨ **Manifestation:**

- Some babies with **Hirschsprung's disease** have blocked intestines at birth. There's a chance baby will have Hirschsprung's disease if they don't poop **within 48 hours after birth.**
- **Delay meconium pass**, more than 48 hours.

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Classification: Internal Use

- **Constipation, weight gain**
- **Increase** abdominal distention.
- **Enlarged colon (Mega colon)** causing edema, ischemia, and potential necrosis result in **sepsis.**

⇨ What are the complications of this condition?

◊ Enterocolitis:

- Occurs in up to 40% of children with Hirschsprung's disease.
- It is inflammation of both the small intestine (entero-) and large intestine (colitis).
- This condition can be serious and life-threatening if not treated promptly.
- which can cause:
- Severe diarrhea
- Abdominal pain and distention
- Fever
- Possible sepsis (if infection spreads)

⇨ Causes of Enterocolitis:

◊ **Infections:**

- Bacterial infections (e.g., Salmonella, Clostridium difficile).
- Viral infections (e.g., rotavirus, norovirus).
- Parasitic infections.

◊ **Inflammatory Conditions:**

- Inflammatory bowel diseases (IBD) like Crohn's disease and ulcerative colitis.

◊ **Ischemic Enterocolitis:**

- Reduced blood flow to the intestines, often due to narrowed or blocked blood vessels.

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Classification: Internal Use

◊ **Medications:**

- Certain antibiotics, chemotherapy, or radiation therapy can lead to inflammation in the intestines.

◊ **Neonatal Enterocolitis:**

- In newborns, especially premature infants, this condition may be associated with **necrotizing enterocolitis (NEC),** a severe condition where parts of the **bowel become damaged or die.**

⇨ Sign of Enterocolitis:

- **Elevated temperature.**
- Foul smelling.
- bloody diarrhea.

⇨ How is Hirschsprung's disease managed and treated?

- **There's no cure for Hirschsprung's** disease, but surgical treatment often results in a positive outcome.
- There are two types of surgeries to treat Hirschsprung's disease, a **pull-through procedure** and **ostomy surgery.**
- Pull-through procedure:
- **A surgeon removes** the section of the baby's large intestine that's **missing nerve cells.** Then they connect the healthy part of the baby's large intestine to their anus.
- Ostomy surgery:
- The baby may need **a colostomy (large intestine**) or ileostomy (small intestine) before, or at the same time as, a pull-through procedure.

⇨ Post-operative teaching:

- Blood-tinged mucus coming from stoma
- A small amount of blood during bag change.

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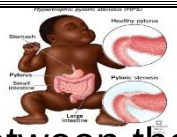
➢ Pyloric Stenosis:



- A **condition in infants** where the **pylorus** (the opening between the stomach and the small intestine) becomes **thickened and narrowed**.
- The thickened muscle **blocks food** from passing from the stomach into the intestines.
- The full medical term for this condition is **hypertrophic pyloric stenosis** (HPS):
- Key NCLEX Points:
- **Common in**
- Firstborn male infants
- Appears between **2–8 weeks** of age
- Resulting in:
- Irritability and forcefully vomiting
- Hunger despite regular feeding
- Lose weight
- Sign of dehydration as **sunken fontanelle,** dry mucous.
- Decreases stool formation
- Palpable **olive shaped**, **epigastric mass.**
- **Projectile vomiting (non-bilious) after feeding**
- Intervention:
- **Abdominal ultrasound** to confirm diagnosis.
- **IV fluid** and **surgical pyloromyotomy**
  - surgical procedure in which a **portion of the muscle fibers of the pyloric muscle are cut.**
- Monitor serum electrolyte.

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➢ Labored breathing:

- **Labored respiration** or **labored breathing** is an abnormal respiration characterized by evidence of **increased effort to breathe**, including the use of accessory muscles of respiration, stridor, grunting, or nasal flaring.
- Sign of Labored breathing:
- **Nasal flaring**
- Accessory muscle use
- Subcostal retraction (sometimes called “belly breathing”).
- Intercostal retraction
- **Paradoxical breathing** (the **chest expands** during inhalation and the **abdomen is drawn inwards** and then during exhalation the abdomen is pushed outwards
- Sign of respiratory distress:
- Tripod position.
- **Intercostal retraction** (when the muscles and skin between ribs pull inwards while you breathe in (inhale). “Intercostal” is the space between ribs. Intercostal retractions can mean that **inflammation or a blockage in the lungs is making it hard to breath)**
- Wheezing and tachypnea.
- Intervention:
- Corticosteroids
- Nebulized as albuterol.
- High follow oxygen
- Continue pulse oximeter.

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➢ Pediculosis capitis (Head ice):

- an **infestation of the scalp** by head lice (Pediculus humanus capitis), which are parasitic insects that **feed on human blood.**
- Spread by:
- Direct contact with **infested individual** or **personal item**.
- Treatment:
- Shampoo usually (**permethrin cream 1% safe and commonly used).**
- Parents should:
- Soak all brushes, combs and hair accessories in a **lice killing solution or** hot water for **10 minutes.**
- Vacuum all carpets and matters.
- Wash the client's bed linen and clothing in hot water.
- Seal **non washable items** in a plastic bag for two weeks.

➢ Ringworm of the body (tinea corporis):

- **Superficial fungal infection of the skin** caused by **dermatophytes**. Despite the name, ringworm is not caused by **a worm** it's a fungal infection.
- How contagious is ringworm?
- **Ringworms are contagious**. It can live on skin, on surfaces and in soil.
- The main ways ringworm spread are:
- **Skin-to-skin contact** with a person who has ringworm.
- Contact with an **infected dog, cat or animal** (livestock or pets).
- Contact with a contaminated surface, such as a locker room floor or sweaty gym clothes.

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Classification: Internal Use

- Sharing objects with an infected person or animal such as a brush, towel or bedding.
- Contaminated soil
- Signs & Symptoms:
- **Circular or ring-shaped** rash with raised red.
- The center of the lesion may appear clear or less inflamed.
- Itching (pruritus) is common.
- Can appear on the arms, trunk, face, or legs.
- Teaching
- Encourage good hygiene as hand washing
- Treatment:
- Antifungal **Topical antifungal creams**:
- Examples: **Clotrimazole**, **Miconazole**
- Apply 1–2 times daily for **2–4 weeks**
- Nursing Considerations & Education:
- Keep the area **clean and dry**
- **Avoid scratching** the lesion to prevent spread
- **Do not share** personal items (towels, clothes, razors)
- Wash bedding and clothing in **hot water daily**
- Educate about **proper hygiene and full treatment course**
- If a **pet is the source**, it should also be treated

➢ **Pinworm (Threadworm / Enterobiasis)**

- **parasitic worms** that live in the **intestines and rectums** of infected people most commonly children.
- Infection is easily transmitted via:

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- Contact with contaminated objects (food, drink, joys, linen) especially in **crowded environments** result in **intense anal itching** client experience restlessness and disturbed sleep from scratching.
- Signs & Symptoms:
- **Intense anal itching**, especially at night (when female worms lay eggs around the anus).
- Disturbed sleep or irritability in children.
- Visible small white worms in stool or around the anus.
- Possible abdominal discomfort or loss of appetite.
- In females, worms may migrate to the vaginal area, causing irritation.
- Treatment:
- Anti-parasitic medication:
- **Mebendazole, Albendazole** Usually **a single dose**, followed by a repeat dose in 2 weeks to kill newly hatched worms.
- Nursing Education:
- Trim fingernails short and discourage scratching
- Hand hygiene: after bathroom use & before meals
- Daily morning showers to remove eggs
- Wash bedding, towels, and clothing in hot water
- Vacuum daily to remove eggs from the environment
- Encourage tight-fitting underwear at night

➢ **Pertussis (whooping cough).**

- Highly **contagious bacterium spread** through **close human contact**, **cough,** and **sneezing.**
- **Whooping cough** sound like loud, **high-pitched "whooping" noise**.
- Characterized by:

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- Loud, high-pitched “whooping” sound following a spasmodic cough.
- **Paroxysmal** (violent, continuous) coughing episodes lasting over 5 minutes.
- Cough may result in:
- Post-tussive emesis (vomiting after coughing)
- Thick mucus production.
- High-Risk Population:
- **Infants <6 months** (especially unvaccinated)
- Risk of **apnea, pneumonia, seizures, encephalopathy, death**
- Nursing Interventions:
- Droplet precautions (mask, isolation if needed).
- Closely monitor airway:
- Watch for signs of airway obstruction.
- Suction as needed to remove mucus.
- Administer oxygen if hypoxia occurs.
- If vomiting: Position the client on their side to prevent aspiration.
- Encourage rest and fluids.
- Treatment:
- Antibiotics and other supportive measures such as **humidified oxygen** and **oral fluid**
- Offer small sips of fluid frequently.
- Azithro**mycin** is preferred for the treatment of pertussis.
- **Cough suppressants are not recommended.**

➢ Acute lymphoblastic leukemia:

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Classification: Internal Use

- A cancer of **immature lymphoid cells** (lymphoblasts) that starts in the bone marrow and spreads to the blood, lymph nodes, CNS, liver, spleen.
- High-Risk Population:
- Most common **childhood cancer**, peak age: **2–5 years**.
- Slightly more common in **males**
- Result in:
- Pancytopenia (Decrease WBCs, RBCs, Platelet).
- Manifestation:
- Bleeding, fever, fatigue, pallor, joint pain and weight loss
- Risk for:
- Varicella (chicken box).
- NCLEX Tip:
- Any **child with bone pain, recurrent fever, bruising, and pallor**
- think **ALL** until proven otherwise.
- **Early diagnosis = better prognosis.**
- Intervention:
- **Prepare for Bone Marrow Biopsy**
  - Educate client, obtain consent, monitor for bleeding.
- **Blood Transfusions**
  - Use **leukocyte-reduced and irradiated** blood products.
- **Leukapheresis**
  - Used if WBC is critically high to reduce symptoms and prevent complications.
- **Infection Prevention**
  - Neutropenic precautions, strict hand hygiene, avoid raw food/sick contacts.

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- **Bleeding Precautions**
  - No IM injections or rectal temps, soft toothbrush, monitor for bleeding signs.
- **Nutritional & Psychosocial Support**
  - Small frequent meals, anti-nausea meds, emotional support (hair loss, fatigue).
- Monitor complete blood count (CBC) regularly:
- Watch for anemia symptoms (due to decreased RBCs).
- Monitor for bleeding/bruising (due to decreased platelets).
- Monitor for infection/neutropenia (due to decreased WBCs).

➢ **Rota virus:**

- **a contagious gastrointestinal (GI) infection** that causes inflammation of the **stomach and intestines** (gastroenteritis).
- This can lead to **severe diarrhea and vomiting**, especially in young children.
- Most common in winter and spring seasons.
- Mainly transmitted:
- **Rotavirus** is a virus that spreads through **hand-mouth contact.**
- **Fecal-oral route(Through contaminated hands, surfaces, food, or water)**
- Manifestation:
- **Severe watery diarrhea**
- **Vomiting**
- **Fever**
- **Abdominal pain**
- Risk of **dehydration** (especially in infants)

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Classification: Internal Use

- Treatment:
- **Supportive only** (no specific antiviral cure)
- Focus on:
- **Hydration**: Oral rehydration solution (ORS)
- IV fluids if severe dehydration
- **Vaccine available** and must be given before the child 8 month.

➢ Mononucleosis disease:

- A contagious **viral infection** caused by the **Epstein-Barr Virus (EBV).**
- Often called the “kissing disease” because it commonly spreads through saliva.
- The infection is common among teenagers and young adults.
- Manifestation:
- Fatigue, fever, sore throat, **enlarged lymph nodes**, **swollen lymph nodes.**
- Complication:
- **Airway obstruction (stridor**) from **swollen lymph nodes.**
- How is mononucleosis managed or treated?
- **There is no specific antiviral treatment** for mononucleosis.
- **Rest** is essential to allow the body to recover.
- **Hydration**: Encourage plenty of fluids.
- **Pain and fever control**:
- Use **acetaminophen** or **ibuprofen** as needed.
- Avoid aspirin in children (due to risk of **Reye’s syndrome**).

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Classification: Internal Use

- **Avoid contact sports** for 4–6 weeks if the spleen is enlarged, to prevent **splenic rupture**.
- **Antibiotics are not used** unless there is a **secondary bacterial infection** (e.g., strep throat).
- **Avoid amoxicillin**: may cause a widespread **non-allergic rash** in patients with mono

➢ **Laboratory Tests for Suspected Bleeding Disorders**

- Essential Lab Tests:
- Clotting Factors (VIII & IX):
  - Detect specific factor deficiencies.
  - Help diagnose Hemophilia A (Factor VIII) and Hemophilia B (Factor IX).
- Platelet Count:
  - Identifies thrombocytopenia (low platelets).
- PT (Prothrombin Time) & PTT (Partial Thromboplastin Time):
  - Assess the blood's clotting ability.
  - Prolonged times indicate bleeding or clotting disorders.

◊ **Hemophilia B**:

- An inherited bleeding disorder.
- Caused by deficiency of **clotting factor IX**.
- Leads to poor blood clotting and increased bleeding.
- 2-**Hemophilia A**:
- Inherited bleeding disorder.
- Caused by deficiency of **clotting factor VIII**.
- **3-Von Willebrand Disease**:

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- Caused by deficiency or dysfunction of **von Willebrand factor**, which stabilizes factor VIII.
- **Other Relevant Tests:**
- **4-Platelet Count**:
- To assess for **thrombocytopenia** (low platelet count).
- **5-Prothrombin Time (PT)** and **Partial Thromboplastin Time (PTT)**:
- To assess overall clotting ability and detect coagulation disorders.
- Nursing Interventions for Clients with Hemophilia:
- **Administer Factor Replacement**:
- Factor VIII for Hemophilia A.
- Factor IX for Hemophilia B.
- **Minimize Bleeding Risks**:
- Implement fall precautions.
- Use soft toothbrush and electric razors.
- Avoid intramuscular injections when possible.
- Use small-gauge needles if injections are needed.
- **Supportive Measures**:
- Encourage rest.
- Apply **ice**, **compression**, and **elevation** (RICE) for joint bleeding.

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Classification: Internal Use

5/ Child Health

➢ Hydrocephalus:

- D Hydrocephalus is a **neurological disorder** caused by an **excess accumulation of cerebrospinal fluid (CSF)** in the brain's ventricles, leading to **increased intracranial pressure (ICP)**.
- Causes:
- **Congenital:** e.g., spina bifida, aqueductal stenosis
- **Acquired:** e.g., intraventricular hemorrhage, meningitis, trauma, tumors
- Results from **imbalance between CSF production and absorption**
- Clinical Manifestations:
- In Infants:
- Rapid increase in **head circumference**
- **Bulging fontanel**
- **Sunsetting eyes** (downward deviation)
- **High-pitched cry**
- **Poor feeding**
- **Irritability or lethargy**
- **Projectile vomiting**
- In Older Children/Adults:
- **Headache** (often worse in the morning)
- **Nausea/vomiting**
- **Blurred or double vision**
- **Gait disturbances**
- **Personality or memory changes**
- Diagnosis:
- **Head ultrasound** (if fontanel is open)

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- **CT scan or MRI** (to assess ventricle size)
- **Measure head circumference** regularly in infants
- Treatment:
- **Ventriculoperitoneal (VP) shunt placement**:
    - Redirects excess CSF from the brain to the peritoneal cavity
- D **Postoperative Nursing Care After VP Shunt Placement**
- Positioning:
- Keep the infant or patient **supine with the head of bed elevated to 30 degrees**. This helps promote CSF drainage and reduce intracranial pressure.
- **Avoid pressure on the operative side:**
    - Do not position the patient on the same side as the shunt to prevent pressure on the surgical site.
- **Monitor for shunt malfunction:**
- Watch for signs that intracranial pressure is rising again, such as:
- Bulging fontanel (in infants)
- Vomiting
- Lethargy
- Headache
- Change in level of consciousness (LOC)
- **Monitor for infection:**
- Infection is a common complication. Be alert for:
- Fever
- Redness, swelling, or tenderness along the shunt path
- Irritability or behavioral changes in infants

➢ **Absence seizure:**

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- An absence seizure is a **brief, sudden lapse** in consciousness **without loss of postural control**. It usually lasts only a few seconds and occurs most commonly in children aged 4–12 years.
- Key Characteristics:
- Sudden blank stare
- Unresponsiveness **during the episode**
- Lasts 5–10 seconds
- Triggers:
- Hyperventilation
- Flashing lights
- Stress, fatigue
- Diagnosis:
- EEG (Electroencephalogram) shows a classic 3 Hz spike-and-wave pattern
- Often diagnosed during school when teachers report "zoning out"
- Treatment:
- First-line medication:
    - Ethosuximide
- Alternatives:
    - Valproic acid
    - Lamotrigine
- Monitor medication levels and seizure frequency
- NCLEX Nursing Priorities:
- Ensure safety: While absence seizures don’t involve falling, the child may still be unaware of danger.
- Educate caregivers and teachers:
- The child is not ignoring them.

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- Medications are necessary even though seizures are short.
- Monitor medication side effects.
- Encourage normal activity and school attendance if seizures are controlled.

➢ Rye syndrome:

- a rare but serious condition that causes **sudden swelling in the liver** and brain. It most often affects children and teenagers **recovering from a viral infection, especially influenza (flu) or chickenpox,** and is strongly associated with the use of **aspirin during** these illnesses.
- It's most common among children **who take aspirin** to treat symptoms during a viral infection or illness.
- Symptoms (usually start 3–7 days after illness):
- **Early Symptoms:**
- Persistent vomiting
- Lethargy, irritability, Confusion, disorientation
- **Progression:**
- Seizures
- Loss of consciousness
- Behavioral changes
- Coma.
- Treatment:
- ICU admission – medical emergency
- **Supportive care:**
- Control brain swelling (e.g., mannitol, hyperventilation)
- IV fluids, electrolytes

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- Vitamin K for bleeding issues
- No specific cure, but early detection improves outcomes

➢ Atopic dermatitis (Eczema):

- A chronic inflammatory skin condition that causes **dry, itchy, red,** and irritated skin. It is very common in infants and children, often part of the atopic triad (with asthma and allergic rhinitis).
- **Noncontagious.**
- The primary goal:
- **Decrease pruritus** and to keep skin hydrated to reduce scratching.
- Treatment Overview:
- **Skin Hydration:**
- Regular use of emollients/moisturizers (multiple times daily)
- Avoid hot water and harsh soaps
- **2. Topical Medications:**
- Topical corticosteroids for flares (choose potency by age/location) Topical calcineurin inhibitors (e.g., tacrolimus) for sensitive areas
- **3. Antihistamines:**
- For severe itching (especially at night)
- **4. Antibiotics:**
- If signs of secondary bacterial infection (e.g., oozing, yellow crusts)
- **5. Trigger avoidance:**
- Identify and avoid personal triggers

➢ Duchenne muscular dystrophy

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- a genetic disorder characterized by progressive muscle weakness and degeneration caused by a lack of dystrophin, a protein essential for muscle stability.
- Symptoms usually begin **by the age of 6 years**, and the condition mainly affects children assigned male at birth.
- Early signs (age 2–5):
- Delayed motor milestones (late walking)
- Difficulty running, climbing stairs
- Frequent falls
- Waddling gait
- **Characteristic signs:**
- **Gower's sign:** child uses hands to "climb up" their legs to stand up
    - **Children with this disease** raise themselves to standing position using **Gower sign maneuver** as placing hands on the things to push up to stand, walk on tip toes, parents may report frequent trapping and falling).

- Intervention:
- Daily weight baring exercise
- Frequent passive stretch
- Remove rugs.
- This patient should consume Vit D
- Risk for:
- Dysphagia and aspiration.
- Treatment:
- While there's no cure, treatment aims to slow disease progression and
- improve quality of life:

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- **Corticosteroids** (e.g., prednisone, deflazacort): improve muscle strength and function
- Cardiac medications (e.g., ACE inhibitors, beta-blockers) For managing cardiomyopathy.
- Physical therapy: to maintain flexibility and delay contractures
- Assistive devices: braces, wheelchairs
- Ventilatory support: in advanced stages.

➢ Osteomyelitis:

- an **infection of the bone,** usually caused by bacteria (most commonly Staphylococcus aureus) or, less often, fungi.
- It leads to painful inflammation of the bone and bone marrow.
- Kids with osteomyelitis most commonly have it in their **leg or arm bones.**
- Causes / Risk Factors:
- Open fractures
- Orthopedic surgery or implants
- Diabetic foot ulcers
- Immunosuppression
- Hematogenous spread (from another infection in the body)
- Complication:
- Bone necrosis and sepsi
- Treatment:
- IV antibiotics (initially) → may switch to oral antibiotics once improved
- Duration: 4–6 weeks typically
- Surgical drainage or debridement may be needed if:
- Abscess is present

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- No response to antibiotics Chronic infection

➢ Acute otitis externa:

- Inflammation or infection of the outer canal
- Risk factor:
- Use **ear headphones** while running and swimming.
- Signs & Symptoms:
- Ear pain (especially with movement of the pinna or tragus).
- Redness and swelling of the ear canal
- Itching in the ear
- Possible ear discharge (clear or purulent)
- Hearing may be temporarily reduced due to swelling.
- Risk Factors:
- Swimming (especially in pools/lakes → moisture promotes bacteria) Use of earphones/earbuds while sweating or running
- Trauma to the ear canal (e.g., cotton swabs, fingernails
- Treatment/Interventions:
- Topical antibiotic ear drops (e.g., ciprofloxacin + hydrocortisone)
- Keep the ear dry: no swimming or inserting objects
- Pain relief: acetaminophen or NSAIDs
- Avoid using headphones/earbuds or inserting anything in the ear

➢ Acute otitis media:

- **A bacterial or viral infection** of the middle ear, causing inflammation, fluid accumulation, and pain.
- Common in infants and young children due to short, horizontal Eustachian tubes.

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- Signs & Symptoms:
- Ear pain (child may pull or tug at ear)
- Fever
- Irritability, crying more than usual
- Bulging, red tympanic membrane (seen on otoscopy)
- Decreased appetite
- Possible drainage if a tympanic membrane rupture
- Temporary hearing loss.
- Risk factor for acute otitis media:
- Formula feeding (vs. breastfeeding)
- The baby continues to use a pacifier (soother or dummy) after they are 6 months old.
- Exposure to tobacco smoke
- Recent upper respiratory infection (URI)
- Attending daycare.
- Treatment:
- **Antibiotics** to treat the infection.
- If symptoms **do not improve within 48 to 72 hrs**. of antibiotic therapy the client should return for **further assessment**
- Child may need hearing screen after infection resolve.
- **Pain management:**
- acetaminophen or ibuprofen Return to provider if symptoms don't improve within 48–72 hours.
- Preventable measures to prevent otitis media:
- Eliminating exposure to smoke.
- Routine immunization to prevent infection.
- Reduce the use of pacifiers **after age 6 months**.

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➢ Nephrotic syndrome:

- A kidney disorder characterized by **massive protein loss in the urine (proteinuria)** due to increased glomerular permeability.

◊ Main problems:

- Protein in urine (makes urine foamy)
- Low **protein in blood** → causes swelling (especially around eyes and legs) Weight gain from fluid buildup
- High cholesterol

◊ Common age:

- Mostly kids are 2 to 6 years old.
- Signs to notice:
- Swelling (especially in face and legs)
- Puffy eyes in the morning
- Frothy urine

◊ Treatment:

- Steroid medicine (like prednisone) to stop protein leak
- Diuretics to reduce swelling
- Low salt die
- Preventing infections

◊ Watch out for:

- Infection risk
- Swelling getting worse.
- A nurse is caring for a child with nephrotic syndrome who has periorbital edema and reduced urine output. What is the priority nursing action?
- A. Offer high fluid intake
- B. Administer potassium supplements

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- C. **Monitor weight and abdominal girth**
- D. Place the child in Trendelenburg position

➢ Juvenile idiopathic arthritis:

- A **chronic autoimmune disease** that causes **persistent joint inflammation** in children under 16 years of age. The immune system attacks healthy joint tissue, causing pain, swelling, and limited movement.
- Signs & Symptoms:
- Joint swelling, pain, and stiffness (especially in the morning)
- Limping may be the first sign noticed by parents
- Symptoms last for at least 6 weeks
- Sometimes fever and rash
- Common joints affected: Knees, wrists, hands, and ankles.
- Treatment:
- Anti-inflammatory medicines (NSAIDs)
- Steroids for severe cases
- Physical therapy to keep joints moving
- Goal:
- Reduce pain, prevent joint damage, and keep child active.
- This condition is at high risk for **decreasing muscle strength**.
- Both aerobic and anaerobic exercise can help minimize the risk.
- Also exercise (in general low impact weight bearing) that involves range of motion and stretching to pressure joint mobility are the best.

➢ Myopia (near slightness):

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- **A refractive eye error** where close objects appear clear, but distant objects appear blurry.
- This happens because light focuses **in front of the retina** instead of on it.
- Signs & Symptoms:
- Difficulty seeing distant objects clearly (e.g., blackboard in class) Squinting to see far objects
- Frequent headaches or eye strain Sitting close to TV or holding books very nearby.
- Nursing Considerations:
- **Teach clients** to wear prescribed glasses/contact lenses consistently
- **Encourage regular breaks** when doing close work (to reduce eye strain)
- **Promote safety:** avoid driving or operating machinery without proper correction
- Screen children for vision problems to prevent learning difficulties.
- Corrective concave (minus) lenses, glasses or contact lenses

➢ **Hyperopia:**

- A refractive error **where distant objects are seen clearly**, but close objects appear blurry.
- This occurs because **light focuses behind** the retina.
- Signs & Symptoms:
- Difficulty focusing on close objects (e.g., reading or writing)
- Eye strain or fatigue, especially during near work
- Headaches after close tasks
- rubbing eyes frequently.

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- Nursing Considerations:
- Educate clients on proper use of glasses or contacts
- Encourage breaks during close work to reduce eye strain
- Monitor children's vision to avoid learning problems.
- Corrective **convex lenses (+)** glasses or contact lenses

➢ **Retinoblastoma:**

- **A kind of eye cancer that** starts as a growth of cells in the retina can be unilateral or bilateral.
- Signs and Symptoms:
- Leukocoria ("white pupillary reflex") the most common presenting sign.
- Strabismus (crossed eyes)
- Poor vision or vision loss.
- Redness or swelling of the eye (less common).
- Eye pain (in advanced disease).
- Parent report pupils have white which is absent of red glow.
- **Strabismus:**
- Occur when both eyes cannot **focus on the same image.**
- Characterized by deviation of the effected eye.
- Treatment:
- Patching the normal eye **does not affect eye.**

➢ **Nocturnal enuresis:**

- Involuntary urination happens at night while sleeping, after the age when a person should be able to control their bladder.
- Treatment:

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- First treatment, behavior approaches and if nonresponse pharmacological intervention is often used, **Desmopressin** used to decrease urine production performed at least 6 weeks.
- Common Causes:
- Delayed bladder maturation
- Deep sleep
- Genetic predisposition
- Psychological stress (school, new sibling, etc.)
- Nursing Management / Teaching:
- **Reassure the family:** This is common and usually not caused by laziness or behavioral problems.
- Limit fluids before bedtime.
- Avoid caffeine and sugary drinks in the evening.
- Encourage the child to void before bed.
- Use a reward system for dry nights.
- Avoid punishment.

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فاللهم اجعله علما ينتفع به.

تحياتي :مستر رامي البنا

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GOOD LUCK

أتمنى لكم التوفيق، تحياتي لكم، أخوكم: رامي البنا. لا تنسونا دائمًا في دعائكم، أراكم ناجحين ومحققين حلمكم بإذن الله. ولا تنسوا أن المجهود لا يضيع طالما هناك شخص مصر على النجاح.

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